

CONSERVATION

OFFICIAL MAGAZINE
OF THE
AMERICAN FORESTRY ASSOCIATION

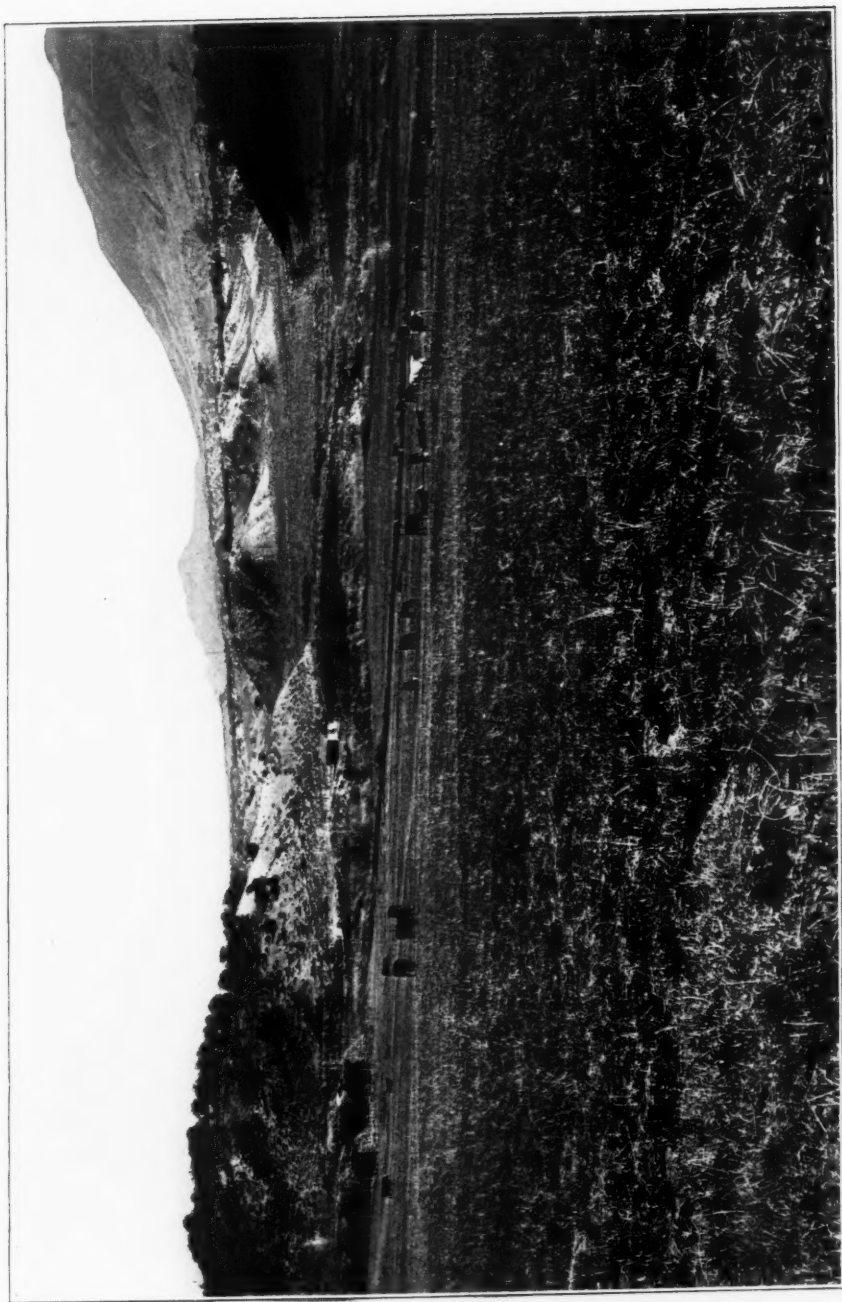
FRANK GLOVER HEATON, *Editor*

CONTENTS FOR SEPTEMBER, 1908

RECLAMATION WORK IN THE WEST.....	Frontispiece
THE CULT OF CONSERVATION—By W J McGee, LL.D.....	469
WORK ON A NATIONAL FOREST—By Charles Howard Shinn.....	473
Illustrated	
FOREST POLICY OF PENNSYLVANIA—By John L. Strobeck.....	481
Illustrated	
NATIONS' NEED OF FORESTRY WORK—By Mrs. J. E. MacKisson.....	487
Illustrated	
THE PLEA OF THE CITY ELM— <i>Poem</i> —By Marian Mead.....	492
EDITORIAL—With Illustrations	
Change of Title.....	493
Our Duty to Posterity.....	493
Not for To-day.....	493
The Practical View.....	494
Conservation, a World-movement.....	496
Forest Fires.....	498
The Next Annual Meeting.....	500
Another Form of Activity.....	501
THE HEGIRA— <i>Poem</i> —By "The Poet Lariat".....	503
THE APPALACHIAN NATIONAL FOREST ASSOCIATION.....	504
THE NATION'S HERCULEAN TASK—By Claude N. Bennett.....	506
NEWS AND NOTES	
Arizona Benefits from National Forests.....	508
Japan Makes Innovations in Forest Management..	508
Government Maps for Automobilists.....	509
New Publications.....	510
AS ONE FOREST RANGER VIEWS IT—By Fred. Hanson.....	512
A GREAT FOREST—By John Collins, M.D.....	514

CONSERVATION is the official organ of the American Forestry Association. Price, \$2.00 per year, including Annual Membership in the Association. Entry applied for at the Post-office at Washington, D. C., as second-class mail matter

Published Monthly at
1417 G STREET N. W. WASHINGTON, D. C.



RECLAMATION WORK
Irrigated Hay Ranch on Rifle Creek, Garfield County, Colorado



Vol. XIV

SEPTEMBER, 1908

No. 9

THE CULT OF CONSERVATION

By W J McGEE, LL.D., Erosion Expert, U. S. Bureau of Soils

Member National Conservation Commission, Secretary of the U. S. Inland Waterways Commission

A NEW Patriotism has appeared. It was born of Enlightenment inspired by International Comity. Fittingly, it first saw light in the land in which Enlightenment found birth in the principle of equal rights of all men to life, liberty, and the pursuit of happiness; yet its field of future activity is the world. Its object is the conservation of national resources; its end the perpetration of People and States and the exaltation of Humanity. The keynote of its cry unto the spirits of men is THE GREATEST GOOD TO THE GREATEST NUMBER FOR THE LONGEST TIME.

The house of this Nation was founded on Land. The Fathers saw no value, no means of enrichment in purse or enlargement of character in aught else; even their sons and their sons' sons sowed maxims and sang ballads assuring all the world that "Uncle Sam is rich enough to give us all a farm." Iron was a luxury from Sweden, steel a sybaritic morsel from Sheffield; coal was unknown, except as laboriously burned from willow as a dentifrice, or aspen for the furnace; petroleum and

rock-gas were beyond dreams; forests were obstructions to settlement, the haunt of savages and beasts, and nigh unto a public evil. Every day was Arbor Day on which a youth won praise not by planting but by felling a tree—unless perchance the tree were a cherry and the chronicler of its fall a hero-worshipful Weems. Apart from men and their homes and fields, but a single resource was noted, and that merely as appurtenant to the land—i. e., the estuaries and streams used mainly for carriage and over-sea commerce; which appurtenance happily inspired a Waterways Commission, yielded a Constitution, and established a Nation in a manner none foresaw save possibly Washington.

To the Fathers the Land, with its incidentally appurtenant water, was enough; they wanted little more—and none too much of that! George Rogers Clark and Benjamin Franklin were viewed askance because they brought into the infant country more territory beyond the mountains than the strip for which the Fathers fought along-shore,

and Jefferson was all but sent to Coventry when he bought an empire for a song—just as within our own memory "Seward's Folly" was a synonym for resourceful Alaska; and even within a decade McKinley and Wilson and Day were derided for opening over-sea lines for our teeming growth. Lulled by woodland zephyr and prairie breeze, the pioneer forgot Eden and its penalty in the sweat of his face for the posterity of men; revelling in boundless acres, he even forgot the line of his loins, and cravenly and impotently swore "Posterity be condemned! Let posterity take care of itself!" Thus he blasphemed the blood of those who fought for Land and Liberty, and foolhardily jeopardized the Nation woven of their lives! So patriotism waned.

Yet prosperity spread apace over fair America; for the fruit of the ages was ripe unto harvest. The half of what he did not eat the settler wasted, and most of the rest he turned over to budding trusts to be used in shaping shackles for his own ankles and wrists; so that after thirteen decades of the freedom for which the Fathers fought, certain seven men—none chosen of the people—hold in their hands the industrial and commercial destiny of eighty millions of citizens! So substance was scattered away and tyranny trained up.

A new revolution began—for every revolution is at bottom mental—when citizens saw a decade past that ravage of woodlands sacrifices streams. Already the story is old. There is still wood enough to last half a lifetime at the current increasing rate, and it is growing a quarter as fast as cut; but the homestead spring has dried up, the mill-stream is shrunk to a slimy thread, the old-time dell is torn by storm torrents, the river is beset by bars, the river-side field caves into the flood a rood at a slump, while the richest of the soil washes into the sea at the rate of half a ton each acre-year. Such is the lesson of the disappearing forest; naturally it led first to uneasiness, later to full awakening; and at last to an inventory of resources, and an analysis of their relations.

During the thirteen decades of American independence, domestic iron production has increased from nearly nothing to over 50,000,000 tons per year; the consumption from less than ten pounds to 1,300 pounds per capita. The original stock was some 10,000,000,000 tons; and while only about 750,000,000 tons have been consumed and wasted to date, if the current rate of increase continues the annual production will within thirty years reach more than half that amount—and before the end of the present century our iron will be gone.

When the Declaration of Independence was signed there were in what is now mainland United States about 2,000,000,000,000 tons of coal—then but a useless black stone, of which little was used until within a century. Already some 9,000,000,000 tons have been wasted and destroyed, and 7,500,000,000 tons have been consumed in ways so wasteful that less than five per cent of its heat value has been turned to useful account. The consumption is increasing beyond belief in any earlier decade; the mere increase in 1907 over the use in 1906 was greater than the total consumption in that Centennial Year (1876) in which America became known as a leader among the world's manufacturing nations. In 1907 some 450,000,000 tons, or over 5 tons per capita for our 84,000,000, were taken out of the ground; and if the current rates of production and increase continue, all will be gone by the end of the next century. And still more woeful is the tale of oil and gas, already largely squandered!

The birthright Land of the thirteen Colonies for which the Fathers fought comprised some 200,000,000 acres, of which a full half was felt forever worthless save for rocks and swamps and trees; but the remaining hundred millions was thought enough for the Nation for all time. With the Clark-Franklin claim allowed at Geneva, Jefferson's Louisiana Purchase, the Florida acquisition, the Oregon discovery and demand (less the spiritless surrender of "Fifty-four forty or fight"), the Cali-

fornia conquest ratified at Guadalupe Hidalgo, the Gadsden Purchase, and the Texas adhesion, the estate increased tenfold; and each accession brought its greatest enrichment in strengthened national character, as elsewhere told.¹ Of the 2,000,000,000 acres "more or less" of the mainland "lot or parcel," some three-fifths is semi-arid, and arable only in spots; so a mere billion acres is suitable for settlement—of which the most fertile 75,000,000 (a richer heritage than that of the Revolution) is swamp or overflow land, serviceable only after drainage. To-day "Uncle Sam's farm" is virtually gone; no more arable acres remain to be given away. Whenever a vacated parcel is opened to settlement, it is seized in a day by soul-searing gamble or disgraceful rush or paralyzing wait-in-line. Except as Science bids the desert blossom, or commands the field to yield two ears of grain where a blade of grass grew before, the limit of the land has been reached.

When the American Constitution was framed on the foundation of interstate waterways, the rain fell on the just and the unjust alike, little recked by either; now the interstate rain is the basis of prosperity, and a coming foundation for even closer union among the People than that written down in the Constitution. Some 200,000,000,000,000 cubic feet of rain descends from the heavens each year on the 2,000,000,000-acre farm of mainland United States; and with a half or even a third of the acres to receive the boon, were it equably distributed the population and productivity, the manufacturing and merchandizing, might be great as they are—with an advantage in reduced cost of transportation. Nominally, lands sell by the acre or foot; actually the price within ten per cent is fixed by the associated water. In verity the 200,000,000,000,000 cubic feet, or ten Mississippis, of annual rainfall is the sole effective capital of the country; without it the land would be desert, devoid of tree or shrub or other living thing.

More than half (say five-eighths) of all is evaporated to temper climate, form dews, and re-descend elsewhere; a fifth goes down to the sea in rivers; say an eighth is stored for a time as ground-water; the remaining twentieth, or half a Mississippi, is stored or used in the ontosphere—in the living structures and functions of animals and plants. The time of storage is short; an animal may survive a week, a humil-land annual plant six weeks or a tree six months, without renewed supply; springs fail and brooks run dry under a three-months' drought. Were a rainless year to come, half the lesser rivers of America would dry up; within seven such years in succession, the Mississippi and Colorado would cease to flow, and within ten the lake-fed St. Lawrence and Columbia would be no more. While the witchery of water still appeals—and all the more by reason of better knowledge—the days of witchcraft and mystery of waters are numbered; for Science has risen to show the sources of spring and well and brook and river, of flowing sap and pulsing life-blood—and all run back to the life-giving benediction of the clouds. Yet because the grandsires of the Fathers were from riverless islands of ample rains and virtually waterless statutes, they and their sons were slow to see natural wealth in water; and it is the irony of American history that the interstate waters which yielded a Constitution were half-forgotten for a century—before a realization of their value arose, begotten of bitter experience in arid regions. For the deepest impulses of Humanity have been inspired by water in dearth rather than abundance; the altruism of which Civilization is the fruit bloomed first in the world's deserts—and necessarily so—as told elsewhere.² The rivers of America form ways of commerce, virtually abandoned through legislative ineptitude and an administrative apathy now happily ended; and in their natural head lies

¹ "National Growth and National Character," *National Geographic Magazine*, Vol. X, p. 186, 1899.

² "The Beginning of Agriculture," by W J McGee, *The American Anthropologist*. Vol. VIII, p. 350, 1895.

power, far beyond that of the hundreds of millions of tons of coal consumed each year, of which but a fraction is harnessed—and most of that monopolized. Their freshets due to deforestation destroy houses and goods to the value of \$150,000,000 annually; their increasing impurities cost lives in thousands; their myriad feeders lick the cream of the soil from the Nation's fields to the measure of a billion tons a year, cutting down the annual crop-yield grievously—say from \$8,000,000,000 to \$7,000,000,000. The destruction wrought by waters running wild is vast; the half of an average year's loss applied over a decade of judicious improvement would tame them forever, terminate the destruction for all time, and bring the Nation's richest resource under complete control. How long will the folly of sluggardly somnolence continue? How long will the People permit the penny-wise pound-foolish policy to persist? How long—how long!

When the lotus-eaters forgot the travail of the Nation's birth, and condemned their own posterity to perdition unknown, national spirit oozed out of their idle fingertips. They wasted what Nature saved through the ages, scattered that which their sires garnered, ceased to consider the fate or even the fact of posterity—so that the very blood of the birthright Land is become of alien tincture, and homes are given over to foreign Lares and Penates. Thus unity grew lax, and patriotism weakened; standards of morality sank below normal instead of rising steadily as is their wont; and the budding notion of national efficiency was chilled back. Monopoly sought to enslave citizens to its sordid behest, and workers retaliated by restricting their own capacity to that of the most incompetent of their class, whereby actual efficiency—which grows by exercise—was lowered. The industrial twins, Labor and Capital, quarreled and disturbed the national household by their bickerings and the anathemas of

each against the Mother of the other; and from darker corners Anarchy thrust a hideous head. Yet, as deeper darkness presages dawn, the enfeeblement of national spirit but made way for the new era in which Patriotism looms loftier and larger than ever before—and with farther foresight. No longer able to dispense acres equally to all, the National instead affords equal opportunity for all to develop a wider range of resources. To-day there are four foundations for prosperity in lieu of one. The Land remains, and in increased worth by reason of intensive treatment rather than extension of settlement; the Forests accumulated above-ground during the centuries and the Minerals below-ground during the ages have acquired worth through the orderly growth and natural development of the country; and Water is coming within ken as the basis of prime values on which all others must depend, and as an inalienable birthright of the People—a common heritage for the common interest, to be administered by Nation and States jointly as befits its interstate character, but never to be withdrawn or withheld from direct control by citizens for their own common good.

Just as the Land for which the Fathers fought was at once the tangible basis and the inspiration for patriotism in an earlier day, so in this day the birthright Land, the soil-making Forests, the native Minerals, and the life-giving Waters inspire Patriotism anew. Each is well worthy of story and song and shrine; and each inspiration is warmer and the whole are knit in closer union by reason of each other.

In 1776 the Fathers of the United States joined in a Declaration of American Independence; in 1908 the Governors of the United States joined in a Declaration of American Interdependence. The first Declaration marked an epoch in world-progress through extension of free institutions. Can the second do less in its intensifying of the spirit of such institutions?



WORK ON A NATIONAL FOREST

No. 9. Chiefly Concerning Horses

By CHARLES HOWARD SHINN, Supervisor Sierra National Forest



NCE upon a time a supervisor had a brilliant idea; it was in the holiday season, and in Land Office days. He was so beautifully young that he looked on all those who sat upon far-off thrones of authority as merely mortal like himself, and as just as willing to take a josh. So he put in a regular requisition for half a dozen centaurs "as an experiment of great scientific importance to American forestry." He further specified that he wanted "two white ones, two black, and two bald-face sorrels, all warranted sound in wind and limb."

I have heard it whispered, where inspectors congregate, that this supervisor very nearly lost his position. His request was not considered at all funny; in fact, one dignified official termed it "impudence." My friend got back from the Great Office the proper form, redly stamped "Not in Stock." "No date can be set for the delivery of these articles." There the incident closed without a tragedy.

It is just as well, perhaps, that no centaurs were to be had, because their rating must have troubled the civil service, and their social standing at our annual meetings would have been a problem of fascinating complexity. But how convenient and how effective a few intelligent centaurs of the classic Chironian type could be made up here in Sierra every day in the year.

(I do not mean the gaudy brand of patent-medicine poster centaurs; I mean, of course, those wonderful creatures of whom Maurice Guerin wrote)

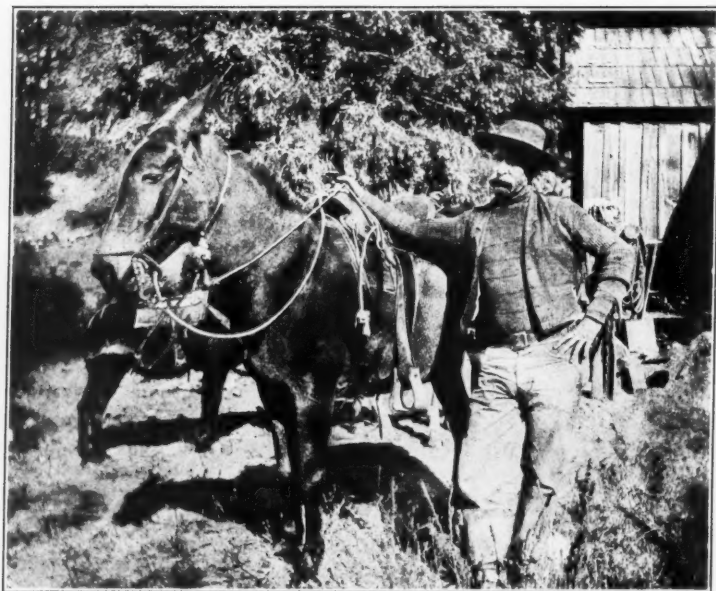
Can it be that none of these mighty and splendid centaurs are left alive in some far-off and mystic Thibetan valley of moonlight and forests to be persuaded forth by some ardent collector from the Department of Agriculture? Professor Hansen has done so well finding new Turkestan alfalfas that perhaps he might be sent after centaurs.

But, in truth, the ranger is the nearest that we are likely to get to those pre-historic centaurs, for very often he and his horse are almost one, and the horse seems the most essential end of the combination. I have no doubt that many of our boys figure more carefully on having enough hay and grain for their horses than they do on buying warm winter flannels for themselves. A very considerable part of our time is unavoidably devoted to saddle-horses, "packs," outfits, stables, pastures, and all that these things imply, include and require.

In the towns and valleys men too often buy horses just as they buy potatoes—for unromantic use. Up here in the mountains men buy more or less of poetry and companionship in even the most shag-bark Indian pony.

Once I noticed at a camp that a certain new ranger was distinctly given the cold shoulder by all the rest. He stood up under it with surprised and bewildered indignation. Of course, in such cases, one can't ask what the trouble is, but I rather thought he had made peppery remarks about camp life. In a little while, when we rode together, I saw exactly the reason; he had several beastly little ways of being mean to his horse, and this it was which had rubbed the rangers the wrong way.

So I took especial pleasure in telling him how it looked to others, and he



One of the Packers

forthwith mended his trails as best he might, according to his "temperament."

The last word is in quotation marks because even up here we hear it too often. A boy who had had several absurd little quarrels, once made his excuses by telling me that he was "very sensitive," and had a "quick temperament." So he had, too; he had several of them.

But to return to the horses. I think it evident that there has been a decided gain in the last three years, both in the quality of our horses and in our care of them. We really get more work out of our horses, too, and still they keep in better shape. They cost us a good deal more, though, both in purchasing price and in the keeping, for everything has gone away up in cost since the old times. Thirty years ago we bought the finest sort of mountain "mustangs" (as the old-style Spanish horses were called) for \$5 or \$10 apiece—just colts from a band of wild animals. Ten years ago we still bought good saddle-horses for \$25. At the present time we pay \$100, or more, and some of us think

the mustangs were better for hard work. Hay and barley, too, are twice as expensive as they used to be. The boys draw down more pay, but not at all in such a proportion as this. We have fenced pastures, which help us a great deal, but they are rocky and overgrown with brush. Besides, the soil is very poor. What is it, then, that has enabled our men to improve the grade of their horses a little and to take better care of them?

I think that these things arise from the increased certainty of the work, and the growing interest in it which is felt by the men. They are rangers now, but they begin to understand that their children may become trained and educated foresters. They feel safe in buying a colt and in handling him with especial care; they can even breed a colt sometimes; they are easier in mind about the whole thing.

Besides all this, our telephone lines begin to save us many of those heart-breaking all-night rides with worn-out horses, to carry news and ask for orders, at times when the poor animals

may have to turn around in an hour or so and hit the back trails. Our horses begin to have a chance to keep in condition all summer. That is one reason why we are doing our best to put up more telephone lines. We still have district centers up here in Sierra, from which it takes a week to get a reply to a letter! A few days ago we had ten fires all at the same time in our 3,000,000-acre forest. Summer thunder storms and lightning-struck trees started most of them. Our rangers were toiling everywhere; "dead on our feet," as one boy said. "Sixty hours

hard places, where no trails can ever be made, for it is a little and stupid thing to be merely able to follow a plain trail from one point to another. One only does that because energy should not be wasted. But there are times when you and your horse go together "across lots," following water courses, or ridges, or striking through an entirely new country, as if you had been dropped from an air-ship into the midst of a strange continent of Saturn. Then the horse draws strength from your intelligence, and you, if you are wise, learn to use more of his than you had



Rangers and Their Families Breaking Camp

without a nap," as another reported. Several rangers pushed their horses all day and all night, leaving one conquered fire to ride into another district and help the men there. So you may understand why one ranger, when the new telephone line reached his cabin went out and gave all his horses an extra feed of barley, and told them to celebrate the event.

But all the telephones on earth will never do away with the need of meeting men face to face, and so we shall always use horses on mountain trails and through the forests. We shall always have that quiet and perfect understanding between man and horse which only comes from lonely rides in

before thought possible. (At least that is the way that Tiapo and I travel together.)

You and your horse go down into some vast cañon where no trail exists, but which you mean to cross. Pretty soon you dismount and pick your way, your horse following, unled, with little questioning murmurs, and with his heart in his eyes. It is easily possible for you to get him down places that he cannot possibly climb up, and, therefore, if you do not think out a way back, inch by inch, as you go down, you may presently find a hundred feet of sheer granite, and so, being unable to go forward (or backward except on

foot), you may suffer the disgrace of having to abandon your horse!

Remembering all these things, you work down into that half-mile abyss of rocks and trees. You come to places where your horse draws his feet together and whimpers like a frightened child. You coax and explain matters till he slides down somehow. Now and then you tie him to some granite splinter, and go ahead to map the course; you roll rocks out of the way. You go back, talk to your horse; you blind-fold him for the last tremendous effort. And thus you toil together all day long from dawn to dark, and you cross that cañon which no one else has ever crossed with a horse, and you camp in a meadow unknown and lovely, untrampled by cattle, in acres of wild lilies and monks-hood. (Some one asks how you can camp without a pack? You have matches and a saddle-blanket, a tin cup, coffee, crackers, and a can of something or other. No one needs more.)

But after supper you say to yourself: "I seem full of aches; guess I scraped somewhere sliding down those rocks." And you examine yourself and find a dozen or more cuts, scratches, bruises, abrasions, and wrenches. If you were a townsman you would be sent to the hospital, but up here it only amuses you. Then you call up your horse to have a cracker, and you look him over to find that he is battered and spotted all over in much the same way as you are. But neither of you would admit that it was a high price for that cañon.

Some one asks me "was it absolutely necessary to go into such a place? Couldn't one ride around it?" Yes, and no, to both questions alike. There might be a possible power-plant site down there, or a line for a flume, or a new species of tree, you know. Broadly speaking, too, no one can rightly know his forest without conquering dozens of just such places.

"Then why not go afoot on these wild explorations?"

Possibly the horse wanted to go too. Anyhow, you feel afterward that it was a good thing for both of you.

But, returning to the daily routine of our lives, I note that the problems of meadows to camp on and of horse-feed summer and winter seem to grow bigger every year. We have more rangers and more horses. There are more tourists, more cattle-camps, more pressure on our grazing resources. Most of the people who come up here for summer are as nice as can be, but some of them rather crowd things. The rangers tell some odd stories around their campfires. I remember one which has a bearing on several of our minor problems.

There was a professor of social science in some staid and remote institution of learning who once came to California with his wife and sister, bought a lavish outfit, hired a guide, and climbed into one of the national forests, when, as the fates would have it, he came into conflict with a sixty-dollar forest guard.

This guard had fenced in about fifteen acres of meadow, where he camped and went every day to work trails, look out for fires, and generally improve things.

One night, when he came back from a smashing hard time of it, rolling big rocks into a creek to keep it from washing out a trail (and a lot of young pines, besides), he found the social science man and his party camping at his spring, and their eight animals were in his pasture. There was a sign on the gate, "*Property of the United States*," and the gate was padlocked, but the professor had ordered the guide to make a hole in the fence.

The guard (who has my sympathies) tried to express himself, and suggested other camping places, not far off. But, as he said later, "The professor was a dinky little dude, an' the guide was jist a stable boy from San José. But his hosses was extra hungry, because they hadn't had a noon-feed. Came right by lots of grass; an' his women folks were along, an' they

looked tired, too. So, I stood for it, an' helped 'em pack in the morning."

As I heard the story, none of the foregoing was known to the supervisor of that forest, who happened to meet the social science man a few days later. He could not but notice that the professor was entirely out of touch with his environment, that the so-called "guide" was hardly worth choking, and that the ladies of the party evidently expected something to drop. (You will please remember that the social science man had been cavorting around in the region for several weeks, and had had many and peculiar experiences with people.)

The sociologist complained that a forest officer had used a swear-word at him—a real big and naughty word, because he put some horses in a Government pasture. There was plenty of feed there. The impudent officer should be dismissed from the Service. And he presented his card, which the supervisor examined with humble admiration.

Then the supervisor, according to the story, asked everybody to rest in the shade, while he told them about the forest guard, and the regulations.

"This guard," he said, in closing, "whose pasture you took possession of gets \$60 a month, and furnishes his own outfit, which cost him \$175. He helps his mother, and helps send a sister to school. He is developing into a fine, capable American citizen, doing very effective work, on one of the real fighting lines of our civilization. If you and your guide had been alone, you would evidently have been taught a lesson in manners and honesty that might have borne fruit in somewhat more useful public lectures on social science. As it is, you have been treated with extreme forbearance."

Of course, this was the "exception that proves the rule." Almost universal good-will exists between tourists and forest officers, and they help each other in a thousand ways.

Rangers vary much in their horse outfits—the personal element enters broadly into small details. They often, when "green hands," begin with the or-

nate and expensive. They usually end in a severe simplicity of strength and fitness. What they reach at last is "just everyday use" for our mountain wear. It isn't at all the "cowboy rig" of the Southwest, for no roping is required and so the saddle can be much lighter. Then, the riding is different, too. We seem to be feeling our way to a distinctive manner of our own on horseback. A sort of easy alertness and interest in the work that never lets up, that takes no sprees after pay day, and that deals with a great variety of subjects. The man knows, and the horse knows, and both like it. The nervous little Indian ponies are dropping out; we ride stronger, quieter horses than we did five years ago.

The "new chums" come in and at once begin to worry about horse-flesh. Once four or five of them, after much consultation, took leaves of absence, hired horses, and rode over the valley towns till they came back with the most forlorn collection of Rosinantes that wily ranchers and livery stables ever worked off on unsuspecting innocence. They had raw colts with wicked eyes, and staggering old staggers, welted and collar-sore. These they proceeded to "break," on successive Sunday afternoons in camp, while older rangers smoked, and looked on in great contentment of spirit. One of these, when he could stand it no longer without breaking up into pieces, got me out behind a tree and said:

"That wall-eyed brute that the new fellow from Sonoma is educatin' to a saddle has been on an eight-horse team down in Fresno for 'bout twenty-nine years to my certain knowledge!"

Does any one think that the older rangers should habitually protect newcomers from these things? It cannot be done, and if it could be would hardly prove wise. You must not take away from a young man these drastic and self-illuminating experiences.

For myself, I do remember well that when I was a callow youth of eighteen, teaching my first school, I was beguiled into a series of successive horse trades, in the course of which a hundred-

dollar colt was reduced to a twenty-dollar crowbait of uncertain age, whose temper and countenance were alike, "cut bias." At the time I thought the world was cruel but infinite values, and no end of delight, have I had from it since then. So, I think it passing well to let our new boys find their own horses and learn as they choose in the famous dame-school of Mistress Experience, whose limber birch-rods all of us have known.

I have sat among the rangers, time and time again, asking them about their horses. It will not work; they cannot tell things themselves. But the things sometimes leak out like mountain

"Wouldn't ride this beast, but can't afford a new one."

"He is spoiling your naturally sweet disposition," I remarked.

The ranger grinned: "A loco horse generally makes a loco rider. I wish I had a horse I could care for."

We care almost too much for some of our horses. I know a ranger who ruined two fine colts, worth \$125 apiece. He married and took his young wife back on the ranges, reporting cattle cases. They camped on a meadow where the colts ate wild parsnip roots, and so died incontinently.

"My little wife she cried all that night over her pet colt, only broke that



Forest Inspector Meeting Some Cattle Men

springs in the rocks. You note that one ranger, for instance, has a horse that he watches with extreme care. He carries a pistol, in fact, so as to kill the animal if need be, to save his own life, or that of some one else. The horse is an "outlaw," desperate, treacherous, more than half-crazy at times. Behind all this looms up a story too long for this article.

One ranger whom I asked why he rode that "outlaw," said tersely "When he wants to he can wear out three common horses."

Said another ranger, whose "outlaw" horse was liable to cripple him if vigilance were relaxed a second:

spring, and gentle as a kitten. We had a hard time getting anywhere. We just cached our packs, and rode the old plugs out, and felt bad all the way. I wish the Government could insure our horses."

I know a ranger who owned a very safe and capable horse. One day this ranger tied a long cross-cut saw on the top of his pack, for he was going to saw logs out of the trail. He was an old, experienced ranger, and a fine packer.

Well, the saw worked loose, in part; it slipped, cut the poor horse's hips, and of course he ran. The saw flew loose at one end, swung so violently as the

horse ran that no one dared to run in; it kept on slashing the horse, tore him almost to pieces, cut off one foot, and he fell over.

"My horse whinnied as I came up, asked me to help him, held up his leg; I just pulled my gun and shot him."

Thus one gets both comedy and tragedy in these simple tales of rangers and their horses. In every story up here, one is apt to find that a horse really belongs somewhere. I have seen two old friends drop silently apart for a time, and then, slowly, painfully come together again. It is some colt which both wanted, or a remark about horses,

companion in hard places a faithful horse can be. Read Kipling's "East and West" ballad; read of great Roland in Browning's poem, and the mighty black charger in "Lady Geraldine's Courtship." Think, too, of that desert "stallion shod with fire," in Bayard Taylor's immortal love song. And, of course, you remember John Brent, and his Don Fulano, storming on and on through the Rockies to save life and honor.

Give us time, up here in these great mountains, and perhaps facts shall make such brave tales as these about our horses and our men, and we, too,



Rangers Ready to Start Out

stupidly repeated, which has made the trouble. Then, seeing this rending of old ties, you can understand the earlier races, the tribes of forest-men, who had only swords and horses. You remember legends of tall, golden-haired youths who fought to the death for some splendid warrior-steed! You remember how young Sigurd went to the Meads of Gripir for Grayfell, the Gift of Odin. Up here, in our mountains, we love those ancient tales of men of weapons, and of horses, when the world was new and the stars were near.

Literature and history are crowded with stories that illustrate how good a

shall become legends and inspirations.

It may happen that some ranger's wife, or daughter, or sweetheart, will take an unbroken colt from the pasture, and ride him at full speed up the pass, all fearless, in black midnight, to carry some fateful message, to gather men to stop a forest fire, to follow some criminal, to save some life. Here and there, as the years pass, in Oregon, or Arizona, or California, or elsewhere, all along our chain of forests, men's horses will fall under them, worn out or heart-broken in sudden stress, and so given to the Service by its servants,

as everything else is given, in utter gladness of heart.

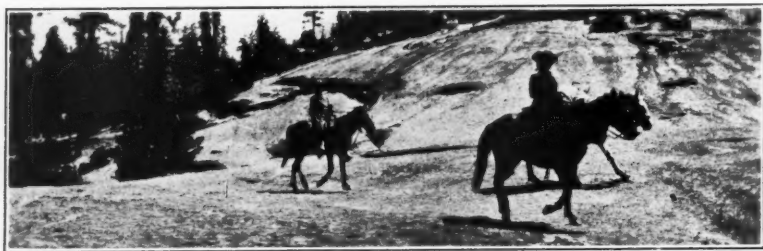
When the work of this generation is done, when the place of this new profession is fully established among men, and when even these joyous fighting days of ours appear as remote as the cave-men and hairy mammoths, it may be that here and there in especially favored forests (of which may Sierra be one) there will be traditions still lingering that once, in the Days of the Beginnings, were very strenuous men who rode great horses everywhere, and boldly fought evil, and earnestly created good-will, and so made possible that more scientific forestry of which they had only visions.

Yes! it may even happen that here and there some granite boulders, or some great pine planted 300 years before, on some ranger's grave, will say to all the world: "Here—just here—a nameless ranger laid down his life, just

to help the forest that he loved. Just to maintain the great traditions of the Service." And men, looking, will say to each other: "These were the very foundation stones of the Temple of Forestry. It has been builded upon such lives as these, and on the lives of thousands of others to whom no chrism of martyrdom came, but who were just as faithful. All of them labored on in darkness as in light, in lean years as in fat ones, under withering criticisms, just as earnestly as in the sunshine of public praise. The Temple is builded because men could once run and ride, could fight and laugh, and live more keenly than we in these late days."

Then, saying such things as these, men will envy us of this very year, forgetting our many mistakes. We shall lie among our rocks as Beowulf in his sea-mound, seen from afar, a guide to the ships and a word in the mouths of men.

On the Trail in the High Country



FOREST POLICY OF PENNSYLVANIA

By JOHN L. STROBECK

OWING to the stand Pennsylvania has taken with regard to tree propagation, in accordance with the principles of economic forestry, she now occupies a position the prominence of which is not the least of her assets. I say assets because it is that prominence which acts as a continual incentive to interest with the landowners in forest preservation and reforestation; and what can be accomplished by an aroused public is well known in commercial economy as well as politically.

But it is the intention to review and discuss the policies of the Department of Forestry of the state with regard to the public lands now under the management of the Department, rather than the economic status regarding private lands. The Department has under its management with absolute title 780,000 acres of forest land, with options for purchase on other lands to the extent of 125,000 acres, which represents nearly \$3,000,000 paid-for titles. However, Commissioner Conklin places a conservative estimate of \$5,000,000 as the actual value based on current values of these lands to the state at the present time.

Pennsylvania stands second among the states in the number of acres of state forest land, New York alone exceeding her. But if liberal opportunities continue to be given for the purpose of purchasing forest land, it is a question of only a few years of time before the state will lead in this respect also. In fact, it is the express desire of Governor Stuart, as given in a speech at Bethlehem this summer, that the state continue the purchase of forest land until it has in its possession or control a total of 6,000,000 acres.

Localities where discontent arose when acquisition was first attempted,

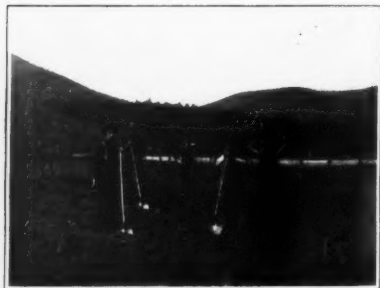
are now reconciled in the majority of cases because of the advantage afforded—

(1) To the poor mountaineer, in whose vicinity the greater areas of the Reserves are situated. He secures labor with more ease, since improvement is also necessary under the policies of the state aside from the usual harvesting which was carried on formerly; and harvesting also requires more labor because of the conservative and efficient manner in which it is done. More labor is therefore, the result, and this strikes a responsive chord in this class of people, which ultimately places the Department in their favor.

(2) Because of the advantage afforded the small landowner who can rest in greater security from devastation by fire, owing to his close proximity to state lands, where protection is a noteworthy feature. He also secures an advantage when he is given work by the Department during portions of the year when his labor is not required on his own property. He secures winter labor, when formerly he remained idle during the colder months. He also enjoys grazing privileges on an equality with the large stockraiser, for rates are the same to all, and his allotment is his only so long as he pays the rates. Of course these advantages are not always clear to him, for his interest generally lies locally only; but it is surprising to note how speedily these people are coming to an appreciative frame of mind.

(3) Because of privileges accorded sportsmen. Although restrictions are posted over state lands which require observance, yet they are very reasonable and still more effective, and the sportsman has the additional advantage of avoiding trespassing processes. The game commission, by authority and ap-

propriation of the legislature, has thus far established three game preserves within the state since 1905 for the propagation of game protected by law. The Fish Commission is stocking the streams of the state with various species of fish, and generally, are favoring



Breaking Ground for Nursery at Asaph, Pa.

the Forest Reserves in allotments. The Forest Reserves indeed are fast becoming the sporting grounds of the commonwealth.

(4) Because of the privileges granted in the form of permits to camping parties; picnics being allowed for a day without such permits, although regulations must be obeyed. Thus the population of the cities has privileges which are public and without discrimination.

(5) Because of the advantages given in private commercial economy. The Department has the approbation of the commercial interests of the state in the promulgation and furtherance of its policies. This interest takes a moral as well as a business aspect although the moral aspect finds its adherents in others besides the commercial interests. The business interest sees for its posterity the redemption of a moneyed cause; the moral interest the well-being and pleasures of its descendants; the business interests depend on it for the continuance of commercial aggression, the moral interest for the dependence and stability of human wants.

The commercial interests, of course, include the lumbermen. State Forester Wirt stated the attitude of the lumbermen very effectively after a recent in-

vestigation of the matter when he said: "Lumbermen who operate largely are almost wholly reconciled to the policies advocated by the Forestry Department; the discontent is evident among those who do not understand the proposition."

(6) The farmer is naturally interested more in his woodlot, which question I do not intend discussing. (Let me say that I wish to discuss only the situation with regard to state land and that only in brevity, for fear of extending this article to undue length.) But he also has both the business and the moral interest—business interest for the propagation of trees for the making of fence posts, rails, building material, etc., for the continuity and perpetuity of value of property for himself and descendants, and also that moral interest inherent in the majority of us, namely, the perpetuity of comforts and



Preparing for Transplanting

benefits of the influence exerted by the forest. Undoubtedly, the farmer views the question of water conservation with the least complacency, for it is he who gets the direct results in this respect, for inundation during flood time is the cause of considerable loss to the farmer



Young Growth, after Land Was Once Lumbered

although few statistics are available on this subject. But cities and towns suffer enormously from this cause yearly, especially Pittsburg and towns in western Pennsylvania. So it can readily be seen that water conservation enters very largely into the arguments and weighs very heavily as a reason for forest preservation. Therefore, it is a question which concerns the state as a whole, and its moral consideration has caused an awakening.

Probably Pennsylvania has not recognized the necessity of conserving her forests at the earliest opportune time, but nevertheless, she is one of the first to give it recognition and undoubtedly foremost in the manner in which she is meeting the problem. Her policy pertaining to management is particularly farsighted and efficient in that she not only sees the advisability of conserving the inherent benefits of the forest, but recognizes the fact that thorough and efficient management is the only means by which this trust of the people can be discharged effectively and profitably; and to this end and for its consumma-

tion the State Forest Academy was established in the year 1903.

The question "Is it the object to educate in the State Forest Academy men for management of the State Reserves, rather than technical experts in the various branches of forestry study?" was put to State Forester George H. Wirt, principal of the Academy, who is also a technically trained forester. He answered emphatically "the former." In fact, the father of the institution, Dr. J. T. Rothrock, had the idea of management uppermost in his mind when he founded the Academy, and to this end the tendency has been most marked, although technical training constitutes a very important and extensive part of the curriculum. It would be an easy matter for the Department to secure men with business ability to manage its reserves, but men of ability with a particular business knowledge must be educated.

The popularity of this movement by the Department can well be gauged by the number of applicants who competed in the examination held at Harris-

burg, July 1 and 2, 1908, for entrance September 1, 1908. It is the intention of the Department to limit the number of students enrolled to thirty, and since students to the number of seven out of a total of twenty-nine, which is the present enrollment, will complete their course of three years, and will be assigned to work on various reserves September 1, there is room for the admission of only eight students this fall. For this number of appointments, fifty-five applicants took the examination, the appointments being given to those who attain the highest average in physical and mental examinations.

The new dormitory is now completed ready for occupancy, or rather half of the proposed plans have been completed. An appropriation of \$15,000 had been received from the legislature of 1907, and this proved insufficient for the erection of a complete dormitory. The Department is awaiting the pleasure of the legislature of 1909 for an appropriation for the completion of the dormitory.

Two classes have been graduated from the Academy so far. They have been assigned to work on different reserves where the work being done is really commendable.

The state has three well-established nurseries at the present time, each in charge of a graduate of the Forest Academy. The Mont Alto nursery is the largest seed-bed nursery in the United States. It is now growing 469,895 two-year-old and 2,250,200 hardy two-year-old white pine seedlings, besides Scotch pine, black walnut, European larch, and hard maple, which makes a total aggregate of over 3,335,000 seedlings. The nursery at Asaph, Tioga County is making an equally commendable showing. There are at the present time 279,580 two-year-old and 600,000 one-year-old, making a total of 879,579 white pine seedlings in beds in the nursery at the present time, besides a small number of other species.

The nursery at Huntingdon is the smallest of the three, owing principally to labor conditions. But its showing,

comparatively, is on a par with the others. At the present time it is growing 500,200 two-year-old and 500,000 one-year-old white pine seedlings.

For the three nurseries, this makes a total of 1,239,475 two-year-old and 3,350,400 one-year-old white pine seedlings, or an aggregate total of 4,589,875 white pine seedlings. The Mont Alto nursery is the only one in which other species are planted to any appreciable extent. Seed beds of Scotch pine contain about 150,000 seedlings, but statistics of the other species could not be procured separately.

Mention must be made of nurseries in charge of rangers on reserves somewhat remote from the large nurseries. The ranger was formerly busy only part of the year during the fire season, and the remainder of the year he would spend part of his time doing odd jobs which would come under a ranger's duty; the remainder of that time he could not utilize in the interests of his position. The Department, therefore, has seen fit to have rangers who are located advantageously to prepare beds and plant white pine seeds, the first year generally to the amount of five pounds. Of course, they get the proper instructions as to the making of the beds, time of planting, method of planting, etc., and it is proving very profitable, especially in so far as it is a labor-saving proposition for the state and at the same time trains rangers in operations subsidiary to their positions, thus making them more efficient and probably more interested in their work.

These nurseries form the nucleus in which the foremost policy of the Department with regard to direct reforestation centers. Natural regeneration is secured wherever possible, but notwithstanding these operations, it is the intention of the Department to reforest the denuded hillsides and open spaces in the state as speedily as possible. So far, planting has been confined principally to the eastern part of the state. Open spaces and abandoned farm land constitute the greatest area of accessible land for planting in eastern Pennsylvania, since lumbering did not re-

ceive such intensive operation and regeneration progressed under more favorable conditions, thus leaving the hillsides in better condition in the eastern than in the western part. But now since the nurseries are increasing in output, it is expected that planting will be started on an extensive scale next year, especially in the western and central parts of the state. This year about 150,000 seedlings were planted from state nurseries, while the greater bulk of the two-year-old seedlings in the nurseries at the present time will be planted next year. Although white pine is planted more extensively than other species, because of its ready growth under soil and climatic conditions of the state, thus insuring the perpetuation of supply of one of the most valuable woods of this country; yet areas which have qualities peculiar for the growth of other valuable species are planted with those particular species. Thus black walnut is being propagated quite extensively, as is white ash, yellow poplar, and white oak. *Catalpa catalpa* and *Catalpa speciosa* have been tried, but have been found unfavorable to climatic conditions in the state, it being susceptible to injury by late spring frosts.

The policy considered second in importance to tree-planting by the Department is protection, second in importance not because tree-planting is more essential to forest betterment than protection, but that protection is fairly well organized while tree-planting is still in its infancy, thus making it the paramount question to be solved. Protection, however, is the largest item of expense of the Department, and will be the largest item of appropriation to be requested of the next legislature. The building of roads and fire lanes is an expensive operation, particularly over the mountainous contour of western Pennsylvania, also to a lesser degree in eastern Pennsylvania; notwithstanding, the work is progressing rapidly, the more speedily in the eastern and northern parts of the state where alleviation from danger is paramount to the well-being and expected maturity of the

young growth which is the more prevalent. However, it is the intention of the Department to extend these operations over all state forest land just so speedily as efficient management can be secured for the continuance of these operations. We agree that it is going to take a considerable length of time to place the management of these lands upon a scientific basis, for all depends (1) upon the liberality of the succeeding legislature, and (2) upon the speed of maturity of advantages afforded by nature's processes of growth. But the former depends upon the education of the public to the advantages of this advance and it is encouraging to note the progress in this respect; the latter balances the former in that since appropriations cannot be expected in bulk, the maturity of certain areas to that point where improvement of a certain kind is necessary gives continuous lease of time for succeeding appropriations, and the Department has taken that fact into account and has arranged its policies accordingly.

The idea of ultimate perfection in the ranger system includes the service of one ranger to every 5,000-acre tract of land under state management. To do this, more funds must be secured for their employment. All appropriations of the legislature of the state are specific—each item receiving an appropriation which is intended for that particular purpose; and in that respect, the Department is handicapped with funds not commensurate with their needs for the different items enumerated. But, nevertheless, all funds can be and are used profitably for their specific purposes, but probably not for the purpose which would be of the most advantage.

Rangers are located in regions where fire is the most destructive—namely, in regions where the growth is most advanced and more valuable. The southern and eastern parts of the reserves receive the most attention in this respect. During seasons when fire is probable, special fire wardens are appointed to work in conjunction with the regular rangers. There are at present fifty rangers at work, and

a corps of special fire wardens during fire season varying in number as the necessity for their services is apparent. Telephone connection is maintained by some of them and has demonstrated the advisability of a permanent system, which sooner or later will be installed.

By reason of this protection policy, the loss from fire has been reduced over half since 1902, the loss that year being almost \$350,000. With a continuous decrease of losses in the future, as has been accomplished in former years of state management, it is hoped that before long a minimum in losses from this cause will be attained. With a complete rangers' system and good roads and fire lanes maintained in condition, the Department will be able to accomplish its purpose speedily.

Methods of culture also enter into the policies of the Department, but (1) acquisition of land, (2) tree-planting, (3) protection are paramount and take

precedence in operation. Improvement cuttings are made quite extensively, but they are made generally for profit, although judgment in selection of trees to be cut is exerted and its benefit not lost sight of in so doing. Lumbering is carried on where trees have reached maturity, and also is done as conservatively and scientifically as conditions warrant. Experiments are made as to the burning of slash, the proper felling of trees, methods of transportation, etc., and conservative methods of lumbering generally. Scientific investigations are made of the growth of different species. Investigation as to the growth of rock oak and chestnut on the South Mountain Reserve has been completed lately and is on file in the offices of the Department.

On the whole, the state is making strides in the preservation and propagation of forests which is very apparent and at the same time commendable.



Lumbering in Priest River, Idaho, Nations Forest



NATION'S NEED OF FORESTRY WORK

A Report Made by Mrs. J. E. MacKisson, Chairman of the Forestry Committee
of the Missouri Federation of Women's Clubs

IN THE United States the science of forestry is a comparatively recent study. The reason, possibly, for the nation's late awakening to the necessity of forest preservation was the fact that in the early days of its history the wooded area was so vast that its timber resources seemed inexhaustible.

When our forefathers established their first settlements in America, it was one vast wilderness. With the exception of the prairie region in the West, the primeval forest extended from ocean to ocean. The pioneer, to make a little clearing for his farm, and to provide fuel and timber for his every-day needs, wielded his ax with relentless hand. Trees were felled by the wholesale and burned on the ground where they lay. The woodman's ax became the symbol of progress. Since, to provide for his necessities, trees must be felled, forest destruction seemed in the line of national development.

Later, when timber began to have a commercial value, a still greater destructive agency came in the person of the lumberman, who, reckless and indifferent, cut without thought of the future's needs. Seeking personal gain, he had no regard for the nation's welfare or the rights of posterity. Extravagance and waste marked his progress through the forests of the East and North, until finally, as a nation, we began to realize that our forest area was being rapidly depleted, and that our annual consumption of forest products far exceeded the supply furnished by the forest's annual growth.

Out of this realization grew that important branch of the government work, the Forest Service, with a definite forest policy, through which it seeks to

perpetually maintain that most valuable of the nation's natural resources, the forest.

What has been true of the Nation in regard to its forests is still the pervading order of things in Missouri, though its awakening to the necessity for forest preservation is still a thing of the future. With a forest growth extensive and valuable in the extreme, the need of forest protection has not been generally realized, as yet. With us, the ax is still the symbol of progress. The average farmer and homesteader feels that every acre of land should be cleared as speedily as possible, not realizing that certain sections of his farm could be devoted more profitably to timber than to corn. The lumberman, thinking only of present personal gain, is making such inroads upon the great forest section south of the Missouri, that, in ten years, our timber supply will be practically exhausted unless measures are soon taken for its protection.

Possibly we do not realize the value of Missouri's forest yield. The value of the state's forest products for the year ending December 31, 1906, was \$24,679,476. For the same period, the value of the farm crops (wheat, oats, corn, etc.), was but \$23,378,194, and of the fruit crop but \$6,335,764—both of less value than the forest yield. Yet we speak with pride of our agricultural products and of the big red apple for which our Ozark region is justly famous, and rarely, if ever, refer to the forest, which yearly adds millions to the wealth of our state, and, if wisely used, would continue to add millions through all time to come.

To awaken an interest in this important subject, to educate public senti-



USE OF A NATIONAL FOREST
Sawmill in Operation in Eldorado County, California

ment to an appreciation of the vital relation between forests and human life, to urge definite and speedy action in behalf of forest preservation in Missouri, is the work which the Forestry Committee of the Missouri Federation has to do.

The work of the committee has been greatly hindered by the fact that it has been difficult to get accurate information regarding forest conditions in the state. Investigations along this line had never been made, and information of any but the most general kind was not to be had. During the last year, however, Mr. Samuel J. Record, of the National Forest Service, in cooperation with the Missouri State Experiment Station, at Columbia, made an extensive investigation of the forest resources of the Ozark region, the natural forest section of the state. Upon this investigation and the recommendations resulting, this committee will base its future work.

In Mr. Record's report, his conclusions and recommendations are briefly summarized as follows:

"1. The forest resources of the state are being rapidly destroyed with no thought of their continuation.

"2. The short-leaf pine forests will soon be entirely cut over with no opportunity for reproduction.

"3. The present methods of lumbering are very destructive, and scrub trees are rapidly taking the place of valuable timber.

"4. Forest fires are of too frequent occurrence and should be controlled.

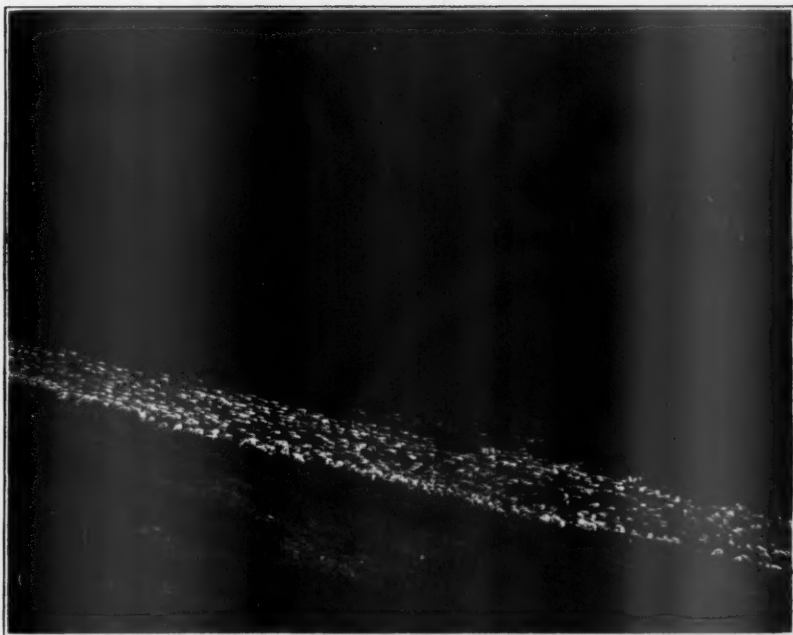
"5. The laws against trespass and timber theft should be more rigidly enforced.

"6. Investigation should be made concerning the various agencies which damage timber, with a view to lessening the injury.

"7. The conservative management of woodlots is practicable and should be encouraged.

"8. Forest planting on prairie regions is very desirable and should be practiced.

"9. The establishment of a Department or Chair of Forestry at the Uni-



USE OF A NATIONAL FOREST

Band of 1,600 Sheep Belonging to D. W. Clark, Grazing in Holy Cross, Colo., National Forest

versity of Missouri is recommended, the instructor to be a technically trained forester, who shall have charge of the forestry work of the state."

According to this expert's opinion, the forest resources of Missouri are exceedingly valuable and special effort should be made to secure their perpetuation, and, as the policy of the past has been almost wholly destructive, the work of the future should be of a constructive nature.

To secure this desired change in conditions, this committee urges club women to take up two closely related departments of work: the encouragement of scientific forestry in the state, and of arboriculture as it relates to the planting and care of trees for shade and ornamental purposes.

Since most of the timber is under private control, the most important work to be done is the creating, by educational and persuasive means, of a senti-

ment favorable to forest preservation. The most effective agencies through which to work are the press, the club, and the public school. Through the press, both the city daily and the country weekly, an educational campaign should be carried on by the district chairman. The information thus carried into every home in the state would, in time, educate the reading public to an appreciation of the state's forest resources and the necessity for their preservation.

Through an observance of Forestry Day in the club and of Arbor Day in the school, this educational work should be continued. In the arrangement of programs, the economic, as well as the æsthetic value of trees should be considered. The value of the day lies not so much in the entertainment afforded or even in the trees planted as in the tree sentiment created and stimulated, that will lead to a bet-

ter understanding of the economic value of the forest and the need of a more conservative use of it.

While conducting this educational campaign, some practical work should be done along the line of arboriculture. The following lines of work are suggested:

1. Street and highway tree planting. There is much of this work to be done.

spring, the tree-butcher and his saw go forth on their work of destruction, under the delusion that this annual mutilation is essential to the life and beauty of the tree.

3. Protection of trees from telephone and electric-light wires. Along this line, there is urgent need of reform work. Wherever the lineman goes, tree-destruction and tree-mutilation in-



FOREST FIRES

Fighting Flames in an Adirondack Forest

Few of our country highways are tree-shaded, and, in the interest of both comfort and beauty, tree planting should go hand and hand with road improvement. Most of the towns have tree-shaded streets, but investigation will reveal the fact that the trees are in need of attention. They have been planted too closely together, are diseased, injured by horses, and mutilated by tree-pruners.

2. Use of proper methods in planting and pruning. Few people know anything about tree-pruning, yet every

evitably follow. Go where you will in the rural districts of Missouri and you will see long stretches of barren, ugly road, with gaunt, wire-strung poles on either side, in place of the beautiful, tree-shaded highways that should be a marked feature of every rural view. In towns and cities, the same conditions exist, and it is time that some restraining measures are taken.

5. Bird protection. Bird preservation is as essential, for economic reasons, as tree preservation.

The work suggested is but preparatory to the chief object which we have in view, forestry legislation. In accordance with the forestry policy suggested by the National Forest Service, your Forestry Committee recommend that a bill, establishing a Department of Forestry at the University of Missouri, be submitted to the next legislature. The instructor in charge of this department should be a technically trained forester, who should have charge of the forestry work of the state.

In order to secure this need legislation, a public sentiment in favor of for-

est preservation in Missouri must be created. In this work club women can give material aid by following the suggestions given in this report.

The forestry question is one of the most important before the people of Missouri to-day. If the existing forests are to be maintained, immediate action must be taken. This work is the Federation's opportunity to do something of lasting benefit to the state, and no effort should be spared during the coming year to arouse an interest in forestry in every section of the state.



WORK IN A NATIONAL FOREST

County Road Building in Pecos River, N. Mex., Forest



THE PLEA OF THE CITY ELM

By MARIAN MEAD. Chicago, Ill.

LONG years, a watchman of the woods, I grew;
The sanctuary of a thousand birds.
Sweetly the cardinal whistled, flashing bright,
Amid my springtide leafage; from my crown
The thrush at morn and eve breathed heavenly prayers;
The merry robin chose me for his nest,
And warred with barking squirrels for his rights.

Then came a day of ruin. Right and left,
The spicy woodland smoked; my comrades lay
Prey to the axe. The busy hands of man
Buit in our ancient realm a human home.
I only left, with mutilated roots,
And crippled branches, strove to bear myself
As worthy warrior of the ancient world.

I sheltered with my boughs this human brood;
The children laughed to see the squirrels race
Along my rugged trunk; still, in the spring,
The piping oriole glanced from twig to twig,
And painted bluejays cheered the winter hours.
How grateful was my shadowy green in heat!
And all the year beneath the sun and moon
My boughs drank in the common fainting air,
That, by the secret power vouchsafed to me,
I breathe back ever to refresh the world,
Purified, and with healing in its wings.

But now, a weary state is mine. A swarm
Of smoking roofs surround me; noxious airs
Arise from every side; my roots are pent
In case of stone, and no enriching soil
Is given to feed them; scorching winds and dust,
Through the long summer days, my tender leaves
Shrivel and clog; and bring with them a blight
That kills off branch on branch. Even the weight
Of burdensome dead wood they spare me not;
And yearly weaker I, and stronger death.

Man sways my fate, for men my life is given.
Well have I served, and many years might serve.
Must I thus pass, neglected, from my post?
No longer look upon the silent stars,
And breathe the joyful sunshine, gathering thence
Strength for my sweeping limbs, my traceries
Of winter twigs, my burst of springtide bloom,
The summer glory of my towering green,
My shadowy cool, my power to bless mankind?

O, Master, generations yet to come,
Shall they enjoy the wholesome good I give?
Oh, hear this timely plea, and help the sum
Of long years' growth; help noble beauty live!

EDITORIAL

Change of Title

WITH this, the September number of the magazine, the lately-adopted title is used, and the magazine, instead of bearing the words "Forestry and Irrigation" on cover and at the head of its pages, will hereafter be known as CONSERVATION. We believe that under the new title the magazine will have a wider appeal, and will reach a more sympathetic audience than under the old, and we feel certain that its field of usefulness will be vastly increased.

It has been felt for some time that the old title did not express all that the magazine, as well as The American Forestry Association, stands for. As we said, editorially, in the August number, there is more to the broad world-movement for conservation than forestry and irrigation. The protection of the forests, and the reclamation, by irrigation, of the country's arid lands, present two phases of the movement, but only two. To be sure, these phases are the ones that have heretofore taken first rank, but the movement is broadening; for a long time, now, there has been a feeling that other natural resources besides those of the forests and the arid lands require attention. This feeling has, as all thinking men realize, increased in intensity and acquired vigor in the increase, until to-day there is no more vital problem facing humanity than that of how best to conserve ALL the resources of Nature, for the best uses of ALL mankind, not only for to-day, but for ALL time.

Our Duty to Posterity

MORE and more is the fact becoming realized that mankind owes a duty not only to mankind, but to the

children of men. Once upon a time—not so long ago, for that matter—a statesman, whose eyes Time has not opened, remarked, "Posterity be damned! What has Posterity ever done for us?" And a cackle of senile laughter accompanied the words. But, thank Heaven, there are men in this land of ours who have ideas more advanced than those of the statesman quoted here, and such men realize the truth of the statement that the generation of to-day has only a life estate in the resources of Nature—only a brief leasehold—and that to ravish those resources, leaving them exhausted for those who are to come, is as criminally dishonest—only in a far greater and more criminal degree—as to destroy a house that is held on the tenure of a year's lease. The man who, as a renter, would wantonly destroy and lay waste a property he occupied would be prosecuted in the courts; how much more, then, should such an one be punished if he lay waste, ravage, trample down, uproot and destroy beyond repair by those who are to follow him, any of Nature's resources? If it were true as many men have said, that to the present generation belongs the earth and the fullness thereof, and that posterity must take care of itself, what would become of modern civilization?

Not for To-day Alone

MORE and more is it coming to be realized that the conservation of natural resources is not a work to be done merely for the men and women of to-day, or to-morrow, but as well for the generations to come. It is not a work that is to be of direct benefit only to those who are now using these resources, but, if our children and our children's children are not to suffer,



SAFEGUARDING THE FORESTS

Twenty-foot Fire-line Protecting Nursery Belt, Santa Barbara National Forest

the generation of to-day must take steps to save the forests that remain; take steps to reclaim the arid lands; take steps to conserve and to utilize the waters; take steps to develop and to use the water-powers and the water-ways; to conserve the mineral resources—coal, iron, oil, gas, etc.—in short, to waste no iota of the resources of nature, and to develop to the utmost those natural sources of material wealth and comfort that have too long been neglected.

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The Practical View

ONCE upon a time—every story that is really a story must begin this way—the Commercial Club of a certain middle western town was confronted with the possibility of the town's losing the use of a beautiful grove of hardwood trees. The grove was situated just at the edge of the town; it had never been made into a

formal park, but, having been cleared and kept in good condition, had been used for years as a picnic ground and for large outdoor gatherings. But, in the fullness of time, the owner of the grove received a good offer for the timber, and was minded to accept the offer. He gave the town first chance, however, and was willing to accept even a lower price for the grove than he could get from the concern that wanted it for the timber that could be cut off it.

The town council, however, failed to act; the delay gave the members of the Commercial Club an opportunity and a special meeting was called, to discuss ways and means of securing the grove for a town park. Nothing resulted from the first meeting; the members and their wives assembled and talked, and at the close of the talk "refreshments were served," as the daily paper remarked. A second meeting, and a third, were held, resulting in nothing but talk and ice cream and cake. At last a quiet, hard-headed old member



WORK IN A NATIONAL FOREST

View of Transplant Nursery. Transplants of *Pinus ponderosa*. Gila River N. F., New Mexico

of the club, who had taken no part in the lengthy conversations, arose and remarked:

"Mr. Chairman, Ladies, and Gentlemen: I haven't said anything at these meetings, because it didn't seem as if there was anything for me to say. But I've decided that I ought to take part in this business, and with your permission, I want to ask a few questions."

As the gentleman happened to be the president of one of the banks, a director in the other, the heavy financial backer of the electric interurban line, and a few other things, he was instantly given permission to ask as many questions as he saw fit. So he proceeded.

"I believe these meetings are held to decide on some steps to secure Blank's grove for a town park?"

Yes.

"Mr. Blank has been offered a high price, by a sawmill company, for the timber in the grove?"

Yes.

"He has offered the grove to the town at a figure lower than the sawmill concern offers him for the timber alone?"

Yes.

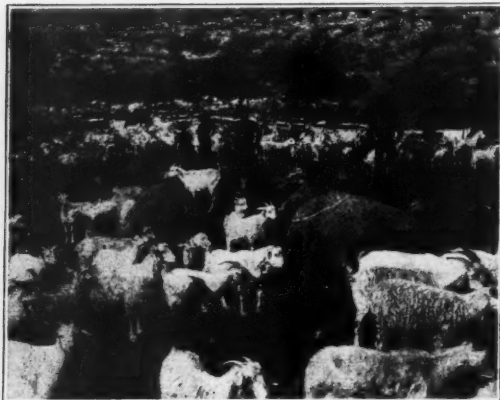
"And now, we, the members of the Commercial Club, are trying to devise some means of protecting the grove from this sawmill concern and saving it for a town park?"

Yes, indeed.

"Well, ladies and gentlemen, I have attended all our meetings, have listened to a great many speeches, and I have heard a whole lot of eloquent descriptions of the beauty of the grove. I have heard all about what an advantage it would be to the town to have this grove as a public park, and I have helped to pay for a very large quantity of ice cream. I have noticed that we have all been pretty shy on suggestions as to how the town may be enabled to secure the grove, but I haven't seen anybody shy away from

the refreshments. Now, it seems to me that if we want to protect that grove from the sawmill concern and save it for a city park, it's time for us to do something. What we want, it seems to me, is more protection, and not so darn much ice cream."

The conclusion of that speech was



National Forest Use. Cliff Bros.' Angora Goats, on Range in Mt. Graham National Forest, Arizona

lost; nobody ever did know what the rest of it was. But the members of the club got to work, and the grove was secured for a park. To-day it is one of the most beautiful small "breathing spaces" in the whole middle West.

Does any one, anywhere, see the application?

Conservation, a World-movement

HERE in the United States we see only one angle of the conservation movement. We have heard of the condition of our own natural resources, and we know something about what the balance-sheet shows. We know—but are far from realizing—that in the very nature of things these resources are nearing exhaustion, and we are taking some feeble, tentative steps toward more scientifically utilizing

them and stopping the waste. But, with our characteristic Americanism, when we have taken a single step in advance, we stop and look around, calling to the rest of the world to see what we have done.

The fact of the matter is, the rest of the world is doing exactly the same thing, except that it isn't calling upon all creation to take notice. For years the countries of Europe have been doing what we are just beginning to do; Germany and France, Italy, Austria, Hungary, Switzerland, and even, within recent years, Spain—to say nothing whatever of England—have taken steps to conserve forests, to utilize waters, to care for soils; in a word, to take care of and render useful to the highest degree every resource of nature.

The worn-out, denuded and eroded lands of China, too, know to-day a small measure of conservation work, and Japan, most aggressive of Oriental lands, is putting into effect what are, perhaps, the most rigorous protective laws, as regards timbers and forests, as well as other natural resources, of any yet enacted by any nation.

In our own hemisphere we are not alone in the work of conservation. Canada's laws—forestry, mining, etc.—are well known; and Mexico, too, is undertaking on rather an extensive scale the work of caring for her natural resources. The Central American countries are making halting steps along the same lines, while in South America practically every one of the republics has written into its statute books laws having to do with the conservation and preservation of some or all of its natural resources. As long ago as 1880, Argentina passed a law to the effect that no trees should be cut and no bark removed without a concession properly obtained from the Minister of the Interior, and then only subject to rather stringent regulations.

Laws of 1894, 1897, and other years, relate to the conservation and preservation of lands, timber, and grazing, irrigation works, mining, fishing, hunting, the obligatory plantation of sold or leased lands, etc.

The national congress of Brazil is now considering laws for perfecting and making completely modern the control of the lands of the nation. The purpose of these laws is to establish regulations governing forests and waters, with a view to the complete

In Chile, as long ago as 1890, a careful study of the republic's forest area was made, with particular reference to the danger of deforestation. The history of Germany was used, likewise that of the United States; and forest laws were enacted at that time, looking toward the preservation of the remaining forests. Prior to that time laws had been passed offering rewards for tree-planting on private estates, and the work along these lines is being actively pushed at the present time.



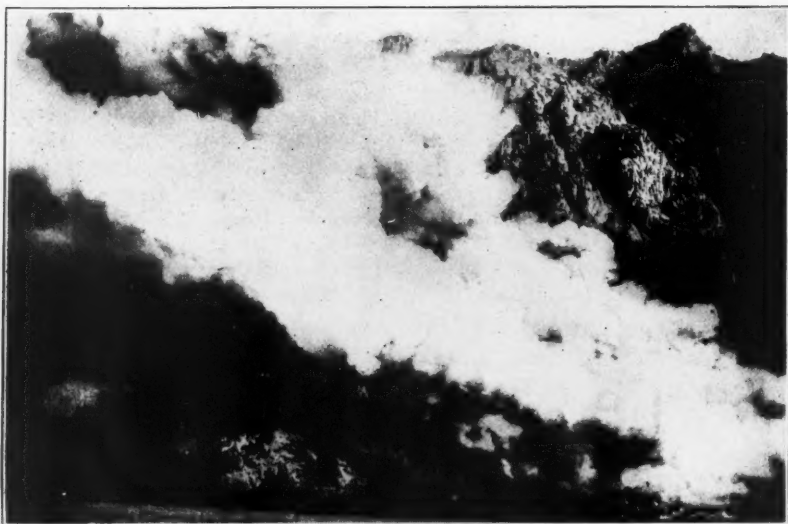
USE OF A NATIONAL FOREST

Cordwood Cut on Gila River, N. Mex., Forest on the Cameron Creek Watershed

rational and practical conservation of natural resources.

Paraguay, notwithstanding its great interest in obtaining colonists, and its very liberal policy toward immigrants, yet has in force laws governing the use of the soil and fixing penalties for its abuse. In the granting of all concessions, rules are given governing crop rotation, timber cutting, and the replanting of lumbered areas.

Colombia, Nicaragua, and Guatemala also have taken steps toward the preservation of the forests and the conservation of soils and waters. The monthly bulletins of the Bureau of American Republics contain frequent references to the progressive attitude of the South American states as regards conservation of natural resources, and it is from that Bureau that the above information has been secured.



DESTRUCTION OF THE FORESTS

Fire in a Rocky Mountain Forest, Rosebud County, Montana

No; we are not alone in the desire to save our forests, utilize our waters, and waterways and conserve our soils and minerals. We are of a distinguished company, that embraces the thinking nations of the world. The cult of conservation is by no means wholly American; it is altogether cosmopolitan. And there is even a danger that we, as a people, may perhaps lag behind some of those other nations that we have believed to be far less progressive and practical than our own.

Forest Fires

AS THE summer advances the reports of disastrous forest fires become more frequent. From northwest, west, southwest, north, east and all directions, the reports of conflagrations come, until it would seem as if our timber supply, only estimated at sufficient for half a century or so, could not now last over a score of years.

The newspapers were full, a short time ago, of reports of the tremendous loss of standing timber caused by the

great forest fires in Alberta and north-western Canada. Several towns, it was reported, have been wiped out; hundreds of square miles of forest and range lands were burned over; many lives were lost, and the property loss caused by the fire, according to conservative estimates, will amount to \$5,000,000, or more.

In Montana—in the Helena National Forest—another disastrous fire occurred during the early part of August. Reports in the papers stated that this fire was caused by lightning, and lightning was also the cause of fires in the Sierra National Forest. Small fires are reported from other parts of the country; and, as a whole, the months of July and August have been disastrous as regards destructive fires in the forests.

In the case of the great Canadian fire, carelessness seems to have been the principal cause of the tremendous loss. The fire had been smoldering in the brush for days, never seeming to threaten any great blaze, and not being considered threatening enough to require attention. Finally, however, the wind shifted; a heavy gale set in,

blowing the smoldering sparks to a raging ocean of fire that engulfed and devoured everything in its path. The Canadian Pacific Railroad is reported to have lost several million ties, worth more than a million dollars, while the loss in standing timber, in crops destroyed, in the destruction of buildings and improvements, etc., ran the total up to an estimate of over \$5,000,000. Care would have prevented the fire; care in the first place would have prevented its starting at all. Hunters or campers, it is believed, left the embers of their campfire uncovered and unextinguished, and nobody seems to have thought it worth while to put out the small fire that later developed into a holocaust.

The fires on the American side of the border, in Montana, while not nearly so extensive or destructive, still were by no means trifling blazes. These fires,

and were finally controlled with a minimum of loss to the timber. The same was true in the case of the Sierra National Forest fires. Threatening at first, they were fought hard and syste-



Fire in an Arizona Canyon

matically, and were put out within a short time.

Fires of this latter origin cannot be guarded against. Lightning rods for every tree in a forest would be rather an expensive proposition, but carelessness on the part of those using a forest can be prevented, to a large degree. National forests are posted at frequent intervals with conspicuous signs warning against the dangers of careless handling of fires; and fire-fighting is a part of the "curriculum" of forest officers. No blaze, no matter how trifling in appearance at the beginning, is ever allowed to gain headway, if it is possible to reach the spot in time; and if the blaze cannot be kept from increasing in volume, through inability



Fire Sweeping an Arizona Mountain

however, were fought from the start. Originating, it is believed, by reason of dead trees being struck by lightning, the fires spread rapidly, but forest rangers and guards were rushed in, the fires were fought systematically,

of the forest force to reach it in time, ceaseless effort is exerted by every available hand—often for thirty-six, or even sixty, hours at a stretch—to extinguish it. The annals of the field force of the Forest Service contain in-



Fire in an Arkansas Forest

numerable tales of hard-fought battles with the flames; battles fought against apparently overwhelming odds and in the face of difficulties that would make the members of a metropolitan fire department quail. In these titanic struggles many a life has been sacrificed, and not a few of the Government's field workers have at last retired from fights of this kind, maimed, scarred, and crippled for life.

A few months ago a well-known writer — Mr. Emerson Hough — in *Everybody's Magazine*, told the story of the work of the Forest Service in the field. His story opened with the words, "My friend, last night somebody burned your house!" The words were startling, but they were absolutely true. Last month somebody burned your house, reader; somebody burned your neighbor's house; somebody burned, during July and August, enough houses to make a good-sized city. Five million dollars' worth of standing timber means a vast amount of sawed lumber; it means lumber enough for several thousand houses. That many homes burned when the flames ravaged the Canadian forests in the Northwest. Flames, at the time of this writing, were raging in the pine and spruce forests of Washington and

Oregon; they were threatening the destruction of the redwood forests of the Yosemite, in California; and from a dozen other points came the story of raging fires and doomed forests. The houses that have been burned, in this wholesale destruction of timber during the past two months, would make a city of 50,000 inhabitants. But still there are those who say "There are plenty of forests; there can never be a timber famine in America; there is no need for even the National Forests we already have." And they oppose the Appalachian Forest plan; they oppose the White Mountain National Forest; they continue, in the West, their opposition to the whole forest program of the Government. When will their eyes be opened?

The Next Annual Meeting

PLANS are now forming for the next annual meeting of The American Forestry Association, the date of which has been fixed by the Executive Committee. The meeting will be held in Washington on January 13, 14, and 15, 1909, and members of the association are urged to begin now their preparations to be present and to

help to make the coming meeting the most memorable in the association's history.

The plans contemplate the elimination of all dry, routine reports; such reports, it has been decided, are to be submitted in printed form, and the time of the meeting is to be given up wholly to the actual, live work of the association. It is the intention to have present some of the ablest speakers on the conservation problem, and to set before the country, in plain English unadorned with flowers of rhetoric, or unmarred with long tabulations of what the Association has done in the past year, exact statements of what is required in the way of taking care of our remaining natural resources. It is the intention to have graphic statements from acknowledged experts, of the exact conditions of the Nation's natural resources, and it is the aim of the Executive Committee to make our coming annual meeting as full of interest—not only to our members, but to the country at large—as was the conference at the White House last May.

It has been suggested that the individual members of the Association send to this office suggestions as to what, in their opinions, should be included in the discussion at the coming annual meeting. These suggestions, it should be borne in mind, should be brief and to the point; and it is hoped, from the mass of suggestions, to work out a profitable, as well as highly entertaining, program. It is the belief of those in control of the Association's affairs that the members should be urged to take a more active part in the work of the organization; and it is thought that by following the plan suggested above, a more active interest can be aroused and held. Suggestions along the lines here suggested will be gladly received, and this office hopes to find its mail well

filled with such suggestions from now to the time of the annual meeting.

Another Form of Activity

A PERSISTENTLY recurring suggestion that comes to the office of the Association in one form or another from all parts of the country is that we should enlarge our activities by adopting a new sort of educational work. The work suggested is that of encouraging the organization of local clubs for the study of forestry and the allied phases of the conservation move-



USE OF A NATIONAL FOREST

Homestead Located in the Black Hills N. F., South Dakota

ment. While at the present time it seems, for many reasons, impossible for the Association to take up, actively, the work suggested, it has seemed that there is more than a small measure of practical value in the idea.

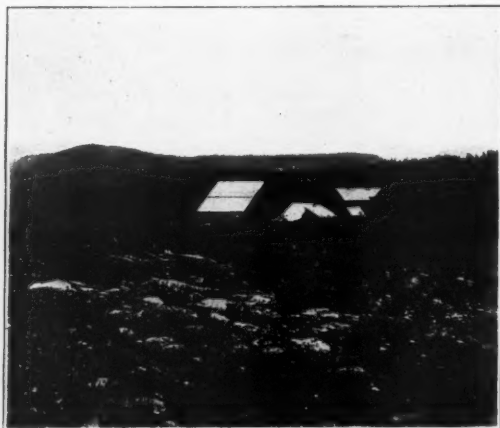
It is suggested that the Association's field of usefulness can be vastly enlarged by the adoption of some plan of this kind. Ours is a nation of clubmen and clubwomen; not a village but has its Browning or Shakespeare club, and the interest in purely social organizations such as these would seem to indicate a fertile field of usefulness for

clubs having as their object the study of the vital economic problem of conservation of natural resources.

Several hundred such clubs, in different parts of the country, would, it is

beneficial in securing needed legislation; and it would appear as if there could be no more effective manner in which to create such a sentiment than through the organization of clubs along the lines here indicated. The pressure that could be brought to bear where most needed, by an effective and solidly welded club membership of several thousand active and interested men and women cannot well be estimated. In certain states, such as those that would be affected by the creation of the Southern Appalachian National Forest, local clubs bound together by a central, state organization, could absolutely control the situation.

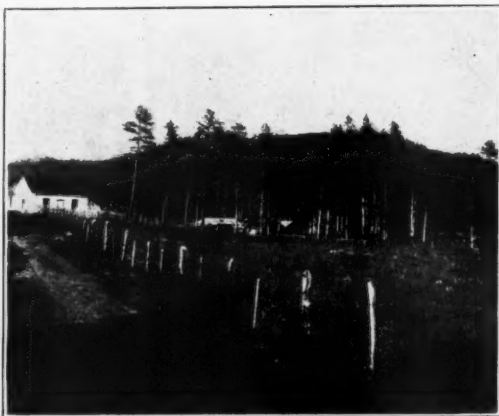
We have had in mind for some time to begin the discussion of the club idea, but have heretofore forbore for various reasons. The discussion is now opened, however, and we should be glad indeed to receive any number of suggestions



Homestead Entry in the Black Hills National Forest

believed, inevitably result in the formation, or the crystallization, of a strong public sentiment in favor of the objects for which our Association stands. A healthy local sentiment for forest protection, soil conservation, waterways extension, water-power utilization, etc., would of necessity have an ever-widening influence, and a club organized for the study of problems such as these could not, it seems, fail to exercise a healthy, stimulating, and strongly educational influence upon the sentiment of any community. The helpfulness of a strong favorable sentiment created by an extensive organization of such clubs, welded together by their harmony of interests, could not fail to be a powerful factor in the success of the conservation movement.

An aroused and intense public interest in conservation as a national necessity, must infallibly prove strongly



Homestead in Black Hills National Forest

as to the best methods to pursue in regard to the organization of clubs; such clubs, perhaps, to be welded into state-wide organizations, for the study of the many-phased ques-

tions of conservation of natural resources. Practical suggestions, from practical organizers, will be more than welcome. It may be that by the adoption of some such plan as this, better and more effective work can be done than has ever yet been accomplished;

and we shall hope to see the movement for the organization of local "conservation study" clubs well under way before the time for holding the next annual meeting of the American Forestry Association, next January.



THE HEGIRA

By the "POET LARIAT"

(A large portion of the clerical force of the Forest Service is to be moved into the West this fall and winter, with headquarters in the cities of San Francisco, Denver, Portland, Albuquerque, Salt Lake, and Missoula.)

Oh, they're whis'pring in the corners
And talking in the hall
They are scheming and a-planning
Where to migrate in the fall,
They are telling one another
Of the places they like best;
Oh, the whole blamed outfit's "locoed"
'Cause we're going out West.

"Have you ever lived in Portland?"
"Is it wet or is it dry?"
"Do you think you'd like Missoula?"
"If you do, please tell me why?"
"Is the living high in Denver?"
"Are the ladies there well dressed?"
Oh, these are burning questions,
'Cause we're going out West.

"Now I want to go to Frisco,
Even tho' the earth does quake."
"Well, I'm wild to see a Mormon,
So I'd much prefer Salt Lake."
"Do you think that I'd get homesick?"
"Are the Frisco fleas a pest?"
What a turmoil has been started,
'Cause we're going out West.

"Oh, they say that board's expensive
In the town of Albuquerque."
"But you needn't take a street car
For to reach your daily work."
"Well, I've heard the living's awful,
(Now please don't think me silly)
But really, do they live out there
On only beans and chili?"
Oh, such like doubts and troubles
Daily agitate the breast,
Of each one in the Service,
'Cause we're going out West.

THE APPALACHIAN NATIONAL FOREST ASSOCIATION

HAVING just made arrangements with CONSERVATION whereby this magazine becomes the official organ of the association, giving us certain news space each month, it is with pleasure and gratification that the announcement is thus somewhat informally made, of the renewal of the Forest Fight by the Appalachian National Forest Association.

This will be of itself cheering news to our earnest and loyal membership throughout the South, but, coupled with the recent election of Hon. D. A. Tompkins, of Charlotte, N. C., as our new president; with the removal of our headquarters to Washington, the real seat of war; with the present ability of Mr. Finney to retain his connection as secretary and treasurer, it must bring to us some idea of the hard work that lies before us, but bring, at the same time, some vision of the success and the value of the work that must in time crown our patriotic and unselfish efforts.

Our association is a purely voluntary one, organized last December in Atlanta, for the purpose of awakening the South to the importance of forest perpetuation, and exerting southern influences toward the support of legislation for the Southern Appalachian-White Mountain bills, then pending in Congress. Its work of education and publicity in all the Southern States has been of large importance to the forest cause, and has called forth the approval of press and people in a remarkable way.

Our organization, hastily made as it was, capable of doing such work as was accomplished by it, cannot be allowed to lapse, so we have girded our loins for the new campaign that is nec-

essary, and with more time for planning, can, we believe, do better and more effective work for the forests—work that must be done in both the Nation's Congress and in the several states if forest perpetuation becomes a reality.

The selection of Mr. Tompkins means a great deal to us. No man is better or more favorably known in the whole South. He is not only prominently identified with vast and successful commercial enterprises, but he is a promoter of them and of the real interests of the South, in the truest and best sense of the term.

He is a close student of men and affairs, a man of earnest and deep thought on economic questions, a far-sighted patriot who does not know what failure means.

His letter accepting the presidency and outlining the future work of the association, is a clarion call to a duty, which, as he puts it, "cannot be evaded" by the patriotic men and women of the South.

The plan of campaign proposed by the association covers the strengthening of our state organization in each of the Southern States, and the extension of the same into all the Eastern States of the Union. Then we plan to get through a vigorous lecture campaign, a large and active membership of three classes:

First.—From the already organized public and semi-public organizations now in each city, such as chambers of commerce, civic leagues, women's clubs, mercantile associations, and clubs, etc., our hope being that these can be induced to become members of our association in a body, thus helping to support our public work; but more

important than that, giving us the moral support and vast influence that would immediately make themselves felt in needed national legislation. Incidentally, they would, as "city branches" of our association, keep up the local interest and publicity.

This kind of a membership in each important city in each state welded into a "State Forest League," directed, as it could well be by our association, could be made to wield a potent influence for the cause of the forests in the various states in calling for state legislation for the establishment of state forests; for the appointment of state foresters; for the revision of the tax laws on forest areas; for the enforcement of fire laws, and could vastly help in the education of the individual owner of forest lands to a sense of his duty to himself and posterity and to the state.

Then we want an individual membership made up of believers in our work and workers for the conservation idea, of interests identified with the forests or its related subjects, such as lumbermen, agriculturists, power companies, navigation companies, and the like.

And lastly, we want "Sustaining Members," to provide the sinews of war.

And we will get them all, too, and give them value received, for we are going to give them CONSERVATION each month, and all the forest facts in detail, and plenty of work to do besides.

Forestry mass meetings under the

auspices of the leading organizations, are already planned and well under way for Richmond, Lynchburg, and Roanoke, Va., Winston-Salem, and Greensboro, N. C., and other points, and by the 1st of October we shall have our hands full.

We are doing our work on faith—faith in the hearty support both moral and financial—of the people; there seems to be no doubt of the feasibility and practicability of our plans, as they have so far been developed, and no doubt either that our faith in the people is fully justified.

The volume of work, however, grows in the same proportion as the interest grows, and we have a large task before us, the successful accomplishment of which is only possible by and through united and earnest effort.

"Pledged to the Forest Cause," our new motto, means some individual sacrifice; some individual work; much individual earnestness, but it is work that will count largely for future America, and for future generations of Americans, and we believe we shall soon have behind us in our campaign the aggressive spirit of what is termed the "New South," which knows what it wants and will get it.

Very cordially yours,

THE APPALACHIAN NATIONAL
FOREST ASSOCIATION,

JOHN H. FINNEY,

Secretary and Treasurer.

National headquarters, 514 Metropolitan Bank Bldg., Washington, D. C.

DUCKTOWN, TENNESSEE

View Showing the Final Results of Deforestation



THE NATION'S HERCULEAN TASK

Synopsis of a Lecture on the Panama Canal Delivered by CLAUDE N. BENNETT, Manager of Congressional Information Bureau, Washington, D. C., before the Summer School of the South at the University of Tennessee, Knoxville

IN HIS lecture on the Panama Canal before the Summer School of the South, Mr. Claude N. Bennett more clearly fixed the attention of the country upon the assured success of this great waterway than has been done by any other recent deliverance upon this live subject. He showed intimate knowledge of the details, as well as the broad principles of the entire task. He demonstrated rare capacity to put his information into concrete form and to tell his audience just the things that they most wanted to know. His statements have been copied with favorable comment all over the country.

After a brief introduction, in which he said that even the whole month which he had spent in the Canal Zone was too short a period to satisfy the interest which the great work there had aroused in him. Mr. Bennett entered into the subject-matter of his lecture. The Canal Zone, he said, is to-day the busiest place on the map.

Think what the proposition is—cutting a canal through fifty miles of hills and rocks, actually levelling mountains, to unite two great oceans; think of the almost incalculable amount of excavation, the figures to express which well nigh stagger the arithmetician; think of the accessories to be taken into consideration in this tremendous undertaking of cutting a continent in two; think of the building of the Gatun Dam, the greatest dam the world will know; think of the immense locks, each 1,400 feet in length, and you may possibly form an approximate idea of an enterprise which has aroused the nations of the world to wonder.

All this was to be done 2,000 miles from the base of supplies, in a tropical country choked up with the densest vegetable growth, a veritable death-trap of fever, malaria, and all manner of tropical diseases. They had to transport across 2,000 miles of sea all the labor, all the lumber to build the houses, all the supplies to feed an army of 30,000 men, all the machinery to operate with, from a pick to a track-throwing machine.

The building of an Isthmian Canal, a waterway that would unite the waters of the Atlantic with the waters of the Pacific, had been the dream of nations for centuries. The French, under Ferdinand de Lesseps, were the first to make a definite attempt, but even that great engineer, the creator of the Suez Canal, had underestimated the tremendous difficulties of the enterprise, and after years of labor, after the expenditure of many millions of money and the sacrifice of many thousands of lives, they had to write failure across their plans. It was reserved for the United States to take up the gigantic task, and the Government of the United States in the brief space of four years has wrought the miracle for which the world waited for centuries. Not that it is finished, for the real work has just reached its middle stage. The United States officials realized that the first thing to do was to make the Isthmus of Panama a place where white men, not natives of the tropical zone, and not inured to that climate, might live. Hence the first thing they undertook was the sanitation of that strip of country, and this in itself was a task so great

that its perfect accomplishment has called forth the grateful admiration of the nations of the earth.

Next in impressiveness to the greatness of the undertaking is the confidence, the colossal fashion in which it is being carried out. There are no doubting Thomases on the Isthmus of Panama. Every official there, from the highest to the lowest, talks and acts and works as if he had a proprietary interest in the canal.

It is pleasing to say to this Southern audience that this great canal which is expected to do so much for the development of the South is being built largely by Southerners. Colonel Goethals, the chief engineer, is from New York. Commissioner Rousseau, the navy man on the Commission, is from Pennsylvania. Former Senator Blackburn, governor of the Canal Zone, is from Kentucky. Colonel Gorgas, the great sanitary expert, is from Alabama. Major Seibert, who has charge of the building of the Gatun Dam, is from Alabama, though born in Georgia and appointed from Iowa. Major Gaillard, who has charge of the Culebra Cut excavation, is from South Carolina. Jackson Smith, who organized and developed the Department of Labor, Quarters, and Subsistence, is from South Carolina. Colonel Hodges, who succeeded Jackson Smith, is from Massachusetts.

The Secretary of War, General Luke E. Wright, who, under the President, has authority over the whole enterprise, is a Southerner, a Tennessean, an ex-Confederate soldier. The President himself is half Southerner—you know his mother is from my home State of Georgia.

Nearly 100 mammoth steam shovels are at work there; there are unloaders and spreaders and track-throwing machines; there are several hundred steam engines, and hundreds of trainloads of material are handled every day. That little fifty miles of track, known as the Panama Railroad, is about the busiest railroad on earth. Three thousand carpenters were at work for years building houses.

There are more than 2,200 buildings of every possible size and shape; twenty-four different types of dwellings alone; office buildings, storehouses, hotels, magazines, and what-not. There are four distinct water systems to supply not only the cities of Panama and Colon, but the entire working force along the line of the canal. There are electric-light plants, railroad shops, ice factories, great bakeries, and all the other utilities that are required to supply the necessities of an army of 44,000, including employees and their families. There is an average working force of about 33,000 men. Of these 7,000 are for the Panama Railroad Company; on the canal there are at work about 5,000 Americans, between 6,000 and 7,000 foreign laborers, and the balance negro laborers.

As to excavation, first, 1,000,000 cubic feet of earth and rock a month was thought to be great work; then excavating 2,000,000 was thought to be wonderful; next, 3,000,000 a month was reached, and now the slogan is that 4,000,000 a month must be reached. Has any one an idea what 3,000,000 cubic feet means? It is a larger bulk than the greatest of the Egyptian pyramids. Three million cubic feet of dirt, if hauled by two-horse wagon teams, would make a string of teams, with a foot of space between them, more than 8,000 miles long.

The Suez Canal was ten years building, between 1859 and 1869. It is about 100 miles long and cost nearly \$100,000,000. We are digging a Suez Canal every year, counting by excavation. The sanitary department cuts and burns or removes 15,000,000 square yards of brush a year, drains 1,000,000 square yards of swamp lands, keeps up 3,000,000 feet of ditches, and fumigates 12,000,000 square feet of living quarters.

As to the cost. The United States paid the French Panama Canal Company \$40,000,000 and the Panama government \$10,000,000. It authorized an expenditure of \$145,000,000 for the construction of the canal. The total amount

expended up to date including the \$50,000,000, is \$145,000,000. The last appropriation act carried for next year's expenses, \$29,177,000. The total appropriations made to date are \$170,964,468.58. Therefore, within the original total of \$195,000,000 there are left not quite \$25,000,000. It is now supposed that the canal will cost altogether about \$300,000,000. No doubt there are men who will cry out that this is a sheer waste of money. The same kind of men ridiculed the Suez Canal in its beginning as a chimerical scheme, but it has paid from twelve to seventeen per cent. on the investment, and there need be no fear that in this respect history will not repeat itself in the case of the Panama Canal. A careful estimate, based on facts, shows an income of \$100,000,000, during the first ten-year period of the canal's operation.

What the Panama Canal will mean to the world in the way of shortening distances in the matter of transportation and the consequent saving of time and expense in the way of coal consumption and freight costs may be realized when it is stated that the whole distance from New York to San Francisco around Cape Horn, is 13,000 miles. Through the Panama Canal the distance will be only 5,000 miles, a saving of 8,000 miles, a distance equal to two and a half times across the United States. When the battle-ship Oregon made her famous trip from San Francisco to Santiago, it took her sixty-six days. If the canal had then been built she could have made the trip in fifteen days—less than one-fourth of the time. The canal will probably be opened by July 1, 1914.



NEWS AND NOTES

Arizona Benefits from National Forest Administration

A STRIKING illustration of the benefits of forest management by Uncle Sam has just been reported from southern Arizona. In this region fuel of any kind is exceedingly scarce and difficult to get. It is supplied chiefly by Mexicans, who go up into the mountains with burros, cut the fuel from juniper and oak trees, and then take it out in small loads on the burros.

In the past, the ranchers living at the mouths of the canyons in the Dragon Mountains have prevented the Mexicans from reaching the most accessible timber, and perhaps justly so, because promiscuous cutting would unquestionably have damaged the watershed and unsteadied the flow of water in these canyons, on which the ranchers were dependent for irrigation. Since the establishment of the National Forest, however, the cutting of wood has been carefully supervised, and only dead

and mature trees the removal of which would not injure the watershed, have been cut.

Careful cutting of this kind has been allowed in the areas which have heretofore been closed to use, and as a result, the price of wood has actually been reduced in the small towns around the National Forests. For instance, in Pearce, an important mining town nine miles from the Forest, the price of wood previous to the creation of the National Forest was \$8 per cord. It is now only \$6, and this decrease can be wholly attributed to the improved administration of the Forest.

Japan Makes Innovations in Forest Management

JAPAN is the only government in the world which takes upon itself the working of its lumber business, according to Consul-General Henry B. Miller, of Yokohama, in a report in which he



TALLULAH FALLS, GEORGIA
Scene in the Southern Appalachian Mountains

quotes the director of the Japanese Forest Bureau.

The Mikado's government has set apart a quarter of a million dollars to build sawmills and lumber roads, manufacture lumber in remote districts, and put it on the market. Except railroad ties for Manchurian roads the Japanese government exports no timber. It is all needed at home.

Many governments in different parts of the world own forests, but, as a rule, the timber is sold where it stands, and the buyer cuts and markets it. That is the way it is done in the National Forests of this country. The Japanese government, however, proposes to carry on all parts of the work, from planting the trees to selling the lumber after it has been manufactured. The report says:

"Recently an official in the department of agriculture and commerce was sent to the United States, and others to Europe for the inspection of the timber trade and forestry administration. A commission was also sent to India for the same purpose. A specialist on forestry in the same department is to be sent to South America shortly on a similar errand. The latter will thoroughly study the rubber plantations, and, if possible, bring back roots or seeds for planting on the Bonins and Luchu groups.

"The Japanese department of agriculture and commerce, which established a sawmill in Akita prefecture in 1906, making a grant of \$100,000 in that year and \$150,000 in 1907, to develop the business, has obtained a vote of \$150,000 toward the fund for the extension of the lumber business, and new government mills are to be established in Nagano and Aomori prefectures. Before the end of this year there will be nine timber mills in all in Akita, Aomori, Miyagi, and Kumamoto prefectures, all worked by the government. In many forests reserved by the government there is a very heavy supply of timber, but these forests are remote from railways, rivers, or seaports, and much expenditure is necessary for opening roads or constructing other means

of transport in order to make such timber available.

District forestry offices will, however, not work mills regardless of profit, as strong competition is going on among them. It is stated that the government mills will only supply their products to merchants in Japan, and the works are not yet progressed to such a stage that the government can export direct. So far, the export of timber by the government mills has been confined to supplying sleepers to the South Manchurian Railway Company."



Government Maps for Automobile Tourists

AUTOMOBILE tourists are beginning to find the topographic maps of the Geological Survey invaluable in laying out routes of pleasure travel. All public roads, as well as all important private roads, are shown on these maps while the contour lines indicating the topography and showing the grades of the roads enable the automobilist to determine accurately the character of the country through which he intends to travel.

These maps are made primarily as bases for the geologic map of the United States which the Geological Survey is constructing, and the fact that they can be employed better than any other maps for non-scientific purposes, such as automobiling, attests their practical value, though this is only one of a very great number of uses to which they are put. No maps, in fact, are so generally used as the Survey's topographic maps. Commercial maps are based on them, and a score of bureaus and departments of the Government use them as bases for special maps or plottings, for determining routes of march or travel, for planning engineering works, and for many other like public purposes.

The topographic map or atlas which will be formed by the combined topographic sheets published by the Survey was referred to last winter by Secretary Garfield, in a report to Congress,

as the "mother map of the country," for it is now the principal source of all other maps. The sheets cover areas termed quadrangles, whose limits are defined by meridians and parallels, and nearly 1,800 of them have already been completed. Some of the states have valued these maps so highly that they have defrayed half the cost of the surveys. The expense of surveying a quadrangle and engraving a sheet ranges from \$3 500 to \$8,000, but after the map has served its scientific purpose to the Government extra copies can be purchased by any one for 5 cents each, or \$3 a hundred, which is simply the cost of paper and printing.

The maps are so detailed and accurate that clever clay modelers have used them as bases for relief or physical maps which were exact miniature reproductions of the regions comprised within the quadrangles, showing every hill and valley in relative steepness, and the lakes, swamps, falls of rivers, etc., as well as all the important works of man.

New Publications

THE United States Geological Survey announces new publications as follows:

Monograph.—XLIX. The Ceratopsia, by J. B. Hatcher, based on preliminary studies by O. C. Marsh, edited and completed by R. S. Lull. 1907. 300 pp., 51 pls. Price, \$1.50.

Bulletins.—324 (Reprint.) The San Francisco earthquake and fire of April 18, 1906, and their effects on structures and structural materials: Reports by G. K. Gilbert, R. L. Humphrey, J. S. Sewell, and Frank Soule. 1907. 170 pp., 57 pls.

328. The gold placers of parts of Seward Peninsula, Alaska, including the Nome, Council, Kougarok, Port Clarence, and Goodhope precincts, by A. J. Collier, F. L. Hess, P. S. Smith, and A. H. Brooks. 1908. 336 pp., 11 pls.

335. Geology and mineral resources of the Controller Bay region, Alaska, by G. C. Martin. 1908. 141 pp., 10 pls.

337. The Fairbanks and Rampart quadrangles, Yukon-Tanana region, Alaska, by L. M. Prindle; with a section on the Rampart placers, by F. L. Hess, and a paper on the water supply of the Fairbanks region, by C. C. Covert. 1908. 102 pp., 5 pls.

342. Results of spirit leveling in California, 1896-1906. 1908. 172 pp.

343. Binders for coal briquets; investigations made at the fuel-testing plant, St. Louis, Mo., by James E. Mills. 1908. 56 pp.

344. Strength of concrete beams, by Richard L. Humphrey. 1908. 59 pp., 1 pl.

Geologic Folios.—157. Passaic (New Jersey-New York) folio, by N. H. Darton, W. S. Bayley, R. D. Salisbury, and H. B. Kümmel. 27 folio pp. of text, 3 maps, and 1 sheet of illustrations. Price, 25 cents.

158. Rockland (Maine) folio, by E. S. Bastin. 15 folio pp. of text and 5 maps. Price, 25 cents.

Mineral Resources of the United States, 1907.—Advance chapters on cement, bauxite, phosphate rock, and monazite and zircon.

The Geological Survey has a limited number of copies of these publications for free distribution (*except those whose price is stated*), and some have been delivered to Members of Congress for distribution. The Survey cannot give more than one copy to any person, and general requests for all the papers cannot be complied with unless a satisfactory reason why every one is desired is given. Payment for sale publications should be made by postal or express money order, payable to the Director, U. S. Geological Survey, or in cash—the exact amount. Checks, drafts, and postage stamps cannot be accepted. Applications sent to the Geological Survey should be addressed to The Director.



AS ONE FOREST RANGER VIEWS IT

From a Personal Letter from Fred. Hanson, Forest Guard, Fifth District
Klamath National Forest, Orleans, Humbolt Co., Cal.

I REACHED this "Ranger Headquarters" March 13; it is 260 miles from Yreka, via Somers Bar and Etna. I made the entire journey with pack-horses. I purchased two good horses and the necessary equipment, costing in all about \$350, and am well prepared for services at my camp and district.

Well, maybe you think I wasn't lonesome for a fortnight, after coming into these mountains and forest from the metropolis! Why, it's sixty-five miles to the nearest railroad, telegraph, and express office, and wagon road. That's not bad, is it? Everything from a needle to a threshing machine is packed in by trail, on muleback and the charge per pound for necessities is from 4 to 6 cents over and above San Francisco prices.

Our headquarters is built of logs, situated on the trail, four and a half miles from Orleans, the nearest post-office. I have been very busy clearing, building fences, chopping wood, surveying, etc.

To-day, Sunday, I attended an Indian burial. The deceased was quite wealthy in Indian relics and money, considerable of which was buried with her. Her husband perforated her nose and ears and attached pieces of the Indian coins or wampum.

There are but two white women here, Misses Arnold and Reed, who are doing educational and missionary work among the Klamath Indians, and who have been sent out from New Jersey by the Indian Department. They have promised to prepare an article about their experiences with the Indians upon the Klamath and Salmon Rivers.

I am interested in FORESTRY AND IRRIGATION. My associate, Deputy Ranger W. H. Hotellings, has some back numbers of the magazine at his home across the Klamath, and when I am over there again, I'll look through them.

I feel a great interest in the Forest Service and will do all within my power to promote the work for the good of the administration. I fully realize the great importance of preserving the valuable forests and watersheds in our state, not only, and selfishly, for the present generation, but for the generations that follow us.

And what helps most of all is the enthusiasm and inspiration one receives from the forceful leadership of Supervisor Richard L. P. Bigelow, who takes a personal interest in his men. * * *

Since writing you last I have come to Weitchpec to survey out twelve miles of the western boundary of the Klamath reserve. The Fifth District of the Klamath National Forest comprises twenty townships, or about 460,000 acres of land. There is plenty of salmon and game during the game season. Roughing it, in a country where there is lots of game, pure air, and water, isn't such a bad thing, is it?

On our last survey I captured a pretty little fawn. After fondling it for a while, I laid it under some bushes and watched for the mother. Presently she came trotting along, and, finding her young one safe immediately disappeared again in the thicket.

An Indian near us recently captured two cub bears, about three months old, male and female, brown and black, respectively. They are such cute little pots; I call them the Teddy bears.

For some time past a panther has been prowling around our headquarters, and killing pigs. Last week the dog treed it and our neighbor boy shot it. I found it to weigh 135 pounds, just about the weight of an average man.

This is Sunday. I am writing this letter stretched out on a few quilts in our tent. Well, it's nearly noon, the beans are about cooked, so I'll close.



IN THE SOUTHERN APPALACHIANS

Scene in the Region Whose Remaining Timbered Slopes and Watersheds Thousands Are Working to Save

A GREAT FOREST

By JOHN COLLINS, M.D., Colson, Ky.

THE Ozark National Forest, recently established, is doubtless one of the greatest bodies of hardwood timber on this continent.

Most of the entire Ozark region is or has been one vast forest, while much of it, including Boston Mountain, a large area of hills and mountain is still clothed in its virgin growths. The oaks predominate, but we have almost every kind of wood growth found in this latitude. White oak is by far the most abundant.

The writer located on a 160-acre homestead on Boston Mountain, in 1906, having immigrated from the mountain of eastern Kentucky, a great timber country. A large scope of country near this homestead, in north Pope and south Newton counties, contains much more unappropriated lands than has been entered. This is true of a great part entered. This is true of a great part of the whole forest, so that capital is now invited for investment and development of this great timber wealth, there having been before this too little of deeded lands, the timber on which could be bought to justify the building of railroads to move it. It is the policy of the Government to put the merchantable timber on the market, then to care for the younger growths, and to produce succeeding crops, in anticipation of a wood famine that is inevitable in the near future if not forestalled.

The President's Proclamation, setting forth this Forest, is dated March 6, 1908, previous to which these lands were subject to homestead entry. The absence of railroads, together with the fact that the latent possibilities of the country as an agricultural, and especially as a fruit country, were unknown, have prevented settlement. The peach and the apple—in fact all fruits indigenous here—do remarkably fine. In size, beauty, flavor, and certainty of yield, it is doubtful if any section in the United States could rival this.

The wealth in white oak alone, which abounds in excess of all other kinds in most parts, is remarkable—seemingly almost inexhaustible—millions of fine trees now awaiting the ax and saw, apparently unknown and ignored by the lumbermen of the country.

We want capital to come to us; lumbermen to investigate this rich field; railroads not only to carry away this wealth of timber, but also the magnificent crops of fruits and vegetables so easily produced here—for while fruits excel, still vegetables, including all the common garden truck, potatoes, beans, melons, etc., do remarkably well. The writer has nothing to sell, but has a desire, common to all settlers, for this needed development. Range for cattle and sheep, and most for hogs are abundant.



